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AND THE SECRETS OF HIS CRAFT: HIS ROMANCE

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WILLIAM KIDDIER
AUTHOR OF "THE PROFANITY OF PAINT," "THE ORACLE OF COLOUR," AND "THE PAINTER'S VOICE"

WITH A SPECIAL APPENDIX ON THE FIRE HAZARDS INCIDENTAL TO THE BRUSHMAKING INDUSTRY
BY
C. S. JOHNSON, F.C.I.I.

SECOND EDITION

LONDON
SIR ISAAC PITMAN & SONS, LTD.
PARKER STREET, KINGSWAY, W.C.2
BATH, MELBOURNE, TORONTO, NEW YORK

PRINTED IN GREAT BRITAIN
AT THE PITMAN PRESS, BATH

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THE BRUSHMAKER

CHAPTER I

AFTER CENTURIES OF SILENCE

THERE are secrets known to the brushmaker that have never been told. Indeed, so little is known about the man and his craft that he may be looked upon as a magician—a man descended from some ancient race like the gipsy. The mystery has remained because no book has been written ; of a truth the libraries throw no light upon the brushmaker at all. The books of centuries, lodged in the British Museum, show but centuries of silence in this respect.

To begin to write in this profound silence, with the feeling of going forth alone, is an experience worth while. It is fascinating !

To have all the secrets at command, and the opportunity given to bring them first to light, are circumstances that make this book unique.

To tell the world about what one knows as a brushmaker, whose associations with the craft go back to babyhood, as is the case here, is to feel a thrill in the veins.

The craft by which a man gets his living should always have his respect. It happens that brushmaking is more than that to the author of these pages : it is substantially his life. An odd sentiment goes with it hard to make intelligible to others ; he loves the smell of the pitch pan !

As an old craft, brushmaking has a small vocabulary of its own, and time has not altered a word. The phrases are short but perfectly expressive to the man that does the work. Without having anything to do with literature they breathe the spirit of the past to a few. Their familiar sound inspires this book.

That the old craft has no history is a matter for which the brushmaker deserves respect. To escape the chroniclers of men and things is a sign of common sense. The brushmaker is an ordinary man. In a world of clever people there is, perhaps, originality in being a plain man: more than that, there may be virtue!

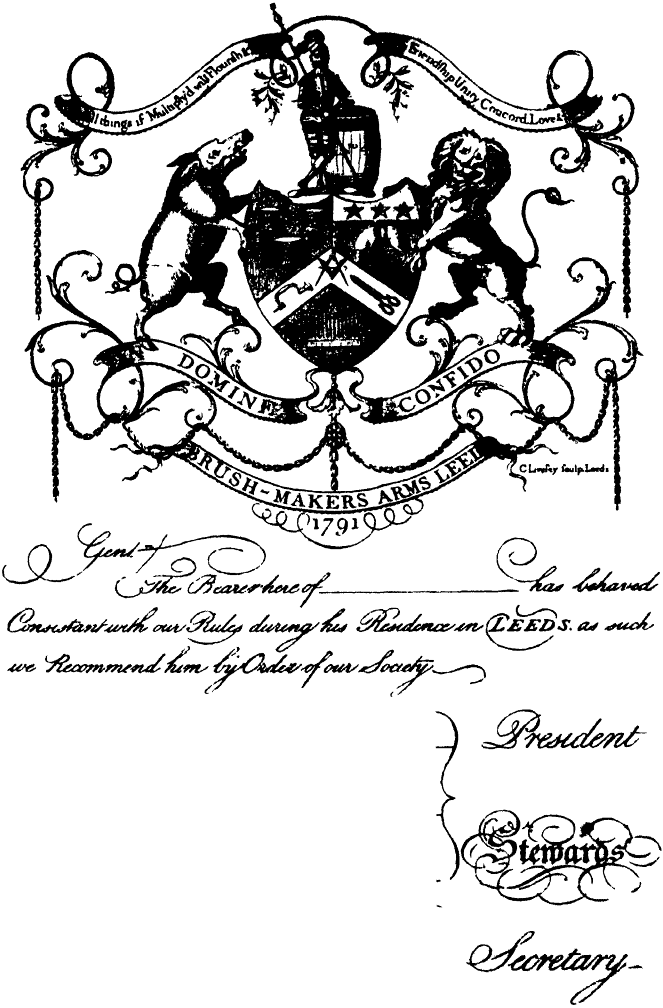
Such a position is that of the man who goes on making brushes, the last thing man ever thought of doing.

In the light of the past the brushmaker is a legendary person, which means that whilst nothing is known about him a few things are said.

All his life the writer has listened to old men; talked with them; talked their talk, their dialect, and heard them at their best.

Men with hard hands will give you glimpses of the past. What is gathered of them of olden time is all true, because they themselves are part of it. Tradition is kept pure in their habits; they belong to it as a link in an endless chain. The sympathetic listener may be transported back a hundred years in a word they let drop. In their unalterable lives they are the oracle of a human current that runs deeper than the depth of all new discovery. They know nothing; that is to say, nothing new. So when they talk they confess themselves as children of an unrecorded past. They talk of themselves and their craft—things that history may pass by as of no account. Here enters the romanticist.

What is said by word of mouth, as handing down things of the past, is good to write, so long as there is reverence for the words, love for the things themselves. Otherwise the charm is lost, the memory destroyed.



All things if Multiply'd will Flourish & Friendship Unity Concord Love &

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BRUSH-MAKERS ARMS LEEDS

1791

C Livesey sculp. Leeds

Gent-

The Bearer here of ________________ has behaved Consistant with our Rules during his Residence in LEEDS. as such we Recommend him by Order of our Society

President

Stewards

Secretary

LEEDS BRUSHMAKERS' CERTIFICATE: DATED 1791

Legend belongs to the heart, fact to the brain. The first needs the sense of truth, the other proportion.

Inspired with these feelings this book is a rare mixture. On the one hand, it is technical, geographical, practical; on the other, romantic! The first three are as the body; the other is the spirit.

The technicalities are sure: the rest is pleasant. The result is a marriage of hard facts and the joy of imagination; and, withal, a contribution to knowledge.

CHAPTER II

BRISTLES

To the man in the street a brush is a thing made of bristles and nothing more. He has a right to think so, because bristles and brushes sound so much alike and have the same root in most languages.

The brushmaker, however, may use innumerable things without bothering with the dictionary. But all told bristles are the most important ; and, since they are the costliest of all things that come into his hands, they are his chief anxiety.

To know their different qualities, allowing always for the variable nature of an animal product, is to have had experience in handling them. There is no other way. Unless the hand is familiar with the touch, no theory will ever make an expert in bristles.

The longest and stiffest bristles are those of the wild boar of the northern provinces of Russia and Siberia and of the swine of the same districts.

Among brushmakers it is generally understood that, though good kinds may come from India and China, Russian bristles are the best.

As each of these countries has its own type of wild boar so arise different types of bristles.

When they reach the merchant bristles are known by the names of their places of origin, as " Russian," " Indian," " China." It would appear that the last name should have been " Chinese," but " China " happens to be the trade term.

As to the bristles themselves each type is as distinct to the brushmaker as the human races of these countries are to the ethnologists.

In the cold regions of Russia and Siberia good proportions of white and yellow bristles are got, whilst dark grey and black predominate in India and China. So we are reminded that animals with black skins may endure heat, whilst the white coated are happy among the snows.

To the British brushmaker Russian bristles are like old friends: he grew familiar with them long before "China" and "Indian" were imported. How long ago it is impossible to say. Perhaps ever since the end of the English wild boar or, at least, before the passing of the native semi-wild pig.

The pigs called semi-wild, for the purpose of this book, are such as feed in the woods in charge of a swineherd, and, also, those that live in places where custom permits them to roam at large.

To picture swine running loose in the woods in England is to go back to the time of the Stuarts at least. That these pigs were once numerous we may be sure; as in every district there was the hog-reeve—an official who adjudicated on the damage done by pigs in trespassing.

With regard to the bristles of these lawless creatures little is known. To the brushmaker, however, this much is clear; that the wilder the pig the stiffer the bristles. So that the change in the life of the English pig must needs have been the cause of the poor native bristles of the eighteenth century; and in the nineteenth their disuse. Foreign bristles, however, were in favour before those days. To talk of foreign bristles is to think of Russia always.

In 1553 the Russia Company was chartered for direct trade; so the natural products of that vast country began to arrive at the port of London in great ships. Among the things of importance were large quantities of furs of various animals from the sable to the bear : the valuable coat of the wild boar, we may be sure, would not be left out.

In the year 1640, in the second charter of Charles I, items of bristles arise in London dock duties. The scavage table of rates inward shows—

Bristles the dozen pounds . . $\frac{1}{2}$*d.*

In 1652 commerce between England and Russia was suspended ; whilst the world watched the naval operations of Van Tromp. Gracious heavens ! when, with appalling oaths against his enemies, the brusque Dutchman fixed a broom to his mast he must have made bristles scarce in the " accursed Isles of Britain ! "

Russian bristles, in those days, were imported in the rough state in barrels of enormous size. It was not until about 1740 that an attempt was made to classify the qualities and do them up in bundles.

About the year 1755 considerable sales of Russian bristles took place in Hull. There is a tradition that the Russians sent these tied in bundles so large that only eight or nine were required to make a hundredweight. The modern hairhand, who knows how hard it would be to do this, might say " those were the days of miracles." The large bundles came packed in barrels of about 9 cwt. each. As these were too large for the brushmakers, most of whom were in a small way, they were bought by a few outsiders, known as capitalists. These moneyed men became bristle merchants.

In 1800 the fame of Russian bristles was complete ; whilst English and Irish had grown so poor as to be regarded as " seconds " always.

About this time Russian came to hand in bundles of about 3½ lbs., dressed to suit the requirements of the brushmakers. The sorts were described as " Russia best," " Russia middle," " Russia riflings." The names " Okatka " and " Siberia " also occur.

It appears that the bristle-dressers in St. Petersburg had certain tuition from a few English hairhands. But, as time went on, the matter of teaching the Russians was regarded as against the interests of the hairhand at home. A little of this feeling is suggested in the minutes of the London Society of Journeymen Brushmakers ; under date 26th August, 1829, the conduct at St. Petersburg of one of the members is questioned.

But the influence of the English hairhand could have been but small, as the Russian method is still different from that of any other country; of a surety there is nothing in the world like a bundle of Russian !

For a time all the imported kinds were called " Russia " as the alternative of home bristles. But, in a few years, when small lots of other bristles were brought by migrating Jews from Dantzic, the name of Russian sorts was changed to " Petersburg," as indicating the port from which they were shipped. The bristles themselves, the products of the vast forests beginning at Finland and ending with Kamschatka, were altogether superior to those from Dantzic, whose area of collection was Poland.

For many years, however, Polish bristles were not taken seriously by the brushmakers : indeed, as late as 1850, one might almost say, " Russian " was first and the rest nowhere.

But in 1872, in the trade boom, American buyers came along, and the price of " Russian " went up rapidly. This gave " Polish " a chance, and other kinds called " German dressed " soon came in the trail.

Close upon the heels of these came " Chinas " followed by " Indian." Among these Asian sorts is a

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AUTOGRAPHS OF LONDON BRUSH MANUFACTURERS
1872

stiff bristle called " wild pig," little known on account of the small quantities produced, but remembered by the author with a sense of humour.

It happened one day he had to telegraph for two sorts of bristles to be included in the same consignment. He handed the telegram in at a village post office, where a woman was in attendance. Opening her eyes with great amazement she exclaimed : " Are they coming here ? " The telegram read : " Send Indians with wild pig."

It was Christian missionaries that first taught the Chinese to dress bristles for exportation. It all happened through the attitude of the Chinese guilds toward the Christian convert. When any Chinese joined the Christians he was treated as an outcast by his own people : nobody would employ him. Therefore another responsibility, outside that of doctrine, fell upon the missionaries. They must find the convert food and shelter. To this end Christian colonies were formed in which employment was given to the poor Chinese. Among the occupations was that of dressing bristles. At first the work was done badly, and, therefore, " China " bristles had a poor reception by the brushmakers. Indeed, it took a couple of generations to bring the quality of dressed " China " to the standard required for high grade brushes.

Meanwhile a number of merchant dressers came into existence in various parts of China. Until then the Chinese brushmakers dressed bristles for themselves alone. The craft guilds of old China were exclusive bodies, hence the craftsmen pursued their trades with due secrecy. The Chinese brushmakers, we may be sure, knew how to use the bristles of the native hog. The Chinese have, for many centuries, known a good deal. The pride of the Chinese craftsman is that of an old race of ingenious people with gifted fingers. They had their craft guilds long before such institutions were formed in Europe.

As the names of countries apply to different types of bristles, so the names of towns and districts mark the various sorts in each type. In " Chinas " the best known are " Chungking," " Tsingtau," " Tientsin," " Hankow," " Shanghai," " Hongkong," and " Newschwang." " Calcutta," of course, is another name for " Indian."

Among Russian sorts are " Kamschatka," " Siberia," " Petersburg," and " Moscow " ; and, also, a number named after their respective dressers, as : " Yerschoff," " Novikoff," " Kutin," " Schwedoff," " Grebinikoff," and " Gusseff."

Polish and German-dressed include such names as " Tictina," " Courland," " Bessarabia," " Moldavia," " Memel," and " Bucharest " ; and also descriptive names like " Schlager," " Auszug," " Spitz," " Abfall," and others, with " Leck " for the long, stiff. And there is a sort that Englishmen call " Dower."

The author remembers " Dower " of the old days when it was a select thing : now, alas, it has outlived its good name. It is a Polish bristle with romantic associations. The Germans call it " Hochzeit." Originally it was tied up in bundles of about ½ lb., each containing a number of small bundles, called " fingers." These small knots show the way it was accumulated ; they throw light on a charming little matter belonging to the folk. It happens that the daughter of Polish and Russian folk, however poor, must have a dower. For this the parents begin early in the girl's life to save something. The savings may not be money but a product of value ; it may be choice bristles : they are easily stored away. The " finger " quantity represents the modest portion filched from each lot as it passed into the hands of the merchant. Washed and tied-up with string these " fingers " of nice bristles would be put into a box and kept until the time the dower was made. The precious box would, perhaps, be hidden under the girl's bed.

At that time " Dower " was as scarce as it was good ; but now, as imitated and prepared by the merchant dresser, the quantity is unlimited, the quality poor.

The longest and stiffest Russian bristles are called " Okatka " ; these are from the neck or crest of the animal. Another sort of less value, bearing the name " Souchoy," grows upon the breast, just behind the fore legs, in great length ; seeming to begin as from the armpits. Hence it is soft. Souchoy in Russian means dry. This suggests the process of straightening by means of heat, but the bristles do not betray it like the German-dressed " Gekochte." Another Russian bristle is called " Viligaluki," an excellent sort, as the name suggests. The word is Russian for " the very best." The general colour of the bristle is light amber. But the cream of Russian, and best of all bristles, is " Otborni." The word means " picked out."

By the way, some dainty bleached bristles of moderate stiffness are prepared in France. These are tied with white string and cased with blue paper. A small label gives the length in millimetres, and the quality, or grade, is defined as " Beaublanc," " Blanc," or " Demiblanc."

But whilst the names of all the various kinds may be of use, as indicating place of origin, the true value of a bristle is in its elasticity or stiffness. A matter for the expert. Light colour, with stiffness, commands a high price always. " Lily," the most expensive of all, is very scarce in the stiffer sorts. Indeed, there seems no limit to the price of what is known as " Lily, stiff."

Russian bristles have certain qualities of their own highly esteemed by the brushmaker. Whether of the wild boar, the semi-wild, or of the domestic pig, "Russian" is more even in thickness from end to end than any imported from India and China. This may be seen in single bristles. But it is better to take a quantity in the hand and hold them tightly together, grasping first one end and then the other. In applying this test all round it will be seen that "Russian" has the smallest roots, and is least taper to the "flag."

These peculiarities give each a different appearance as an imported article. Russian bristles may be tied up in large bundles, but the marked taperness of the other two calls for different treatment. Hence "Indians" and "Chinas" are imported in small bundles with dainty ties, the latter having also a paper wrapper.

Though all these leave their native land as dressed bristles the brushmaker may give them further attention before they are made up into brushes.

The coat of the wild boar is a combination of stiff and fine hairs ; in other words, bristles mixed with an undergrowth of fur. This soft undergrowth occurs in "Russian" always in plenty, whilst in "Indian" there is almost none at all. In any case the soft has to be combed out. The Russian dresser may do this partially, leaving the rest to the brushmaker, the "hairhand." What is combed out is called "riflings." To talk as a brushmaker is to say "Russian produces riflings, Indian does not."

The fur undergrowth may account for another difference in these two bristles, which is a matter of importance touching the lasting quality, the wear of the brush. As the better bristle Russian is very transparent, oily, rich in colour, even in substance from end to end, and tipped with a beautiful "flag." On the other hand

Indian, having no fur undergrowth, is inclined to be " limey " to the touch and opaque in appearance; it may be coarser without being stronger; may have a thick root without the corresponding amount of vitality in the body. Lacking the sparkle and oil of the other, Indian the sooner goes soft in use, and more so when used in water.

The coat of the Russian boar is very thick, the blending of bristles and fur gives him a comfortable appearance. He is by nature a creature of the north; Providence has given him a good garment well-oiled to withstand the snows.

In " China " bristles the moderate fur undergrowth may account for the modification of the Asiatic weakness ascribed here to Indian.

In each country the native pig resembles the native wild boar, and grows the same type of bristles but varying in strength, the wild boar having the stiffer and longer.

The Chinese wild boar is a big animal; hunters give the weight as 500 lb. as representing a fine specimen. The naturalists have Latinized him *Sus leucomystax*.

The fabulists have given him a prominent place in their list of demons. He is sometimes white whiskered, has dark bristles upon the body, and his tusks may be 6 ins. long. His appearance, therefore, is of a kind to feed the imagination with. A Chinese fable makes him responsible for missing children.

The Indian wild boar, *Sus cristatus*, though a smaller animal than his Chinese and Russian brethren has the largest tusks. Often weighing under 300 lb. himself he may have tusks over 12 ins. long.

The Russian wild boar, like the Chinese, is a giant. His enormous head is about a third of the whole pig.

Many years ago the author imported a stuffed specimen of the Russian type, *Sus scrofa*, from Siberia. This comprises the head, shoulders, and fore legs. Mounted upon a board it hangs in the museum in Nottingham. The head measures 20 in. The tusks are 5½ in. long. This may be one of the best specimens of the kind in the country. As showing a considerable portion of the neck it has an interest for the brushmaker, as upon the crest of the wild boar are found the longest and stiffest bristles.

CHAPTER III

A BRUSHMAKER IN POLAND

WHEN the author was a young man of twenty he made a journey and went into Poland and Russia. His desire was to see how bristles were handled at the source. It was in 1879. Foreign travel was not so easy then as now. There were places in Poland where no one knew a word of English. In the matter of bristles it was necessary to go into the villages where dialect was spoken: so the dictionary was of no use. The only thing to be done was to live among the folk and look around. Among those who had bristles to sell were small farmers and cottagers. Their habits were so simple they did not feel the need of a railway; indeed, many had never seen a train in their lives. To reach these people the traveller had to employ nothing better than a horse and cart.

Everything was slow. Men took their time, and horses and oxen took theirs. Whether at work or at the meal there was no cause to hurry. To gulp down food, like people in great cities, would be wrong here. Hardly any had a watch. The hour might be tolled by a bell. That was enough. Minutes did not matter. Work was not measured by the clock. Always in the open men went on till dusk.

Leisure seemed of no account: no time was set apart for play. But in their hearts these folk were playful. They had their fits of laughter and nonsense. If some strolling players came into the village everybody would leave work and go and stand around; even the blacksmith might be seen looking on with the hammer in his hand. Perhaps on another occasion one of themselves, who had drunk spirits freely, would amuse the rest: *Vodka* always made a man eloquent. The wayside inn was a halting place for man and horse ; it was a house of fun and gossip as well as refreshment. As some drank too much there was sometimes a fight. But they would not hurt one another unless a stick was used, and even then the evil effects would soon wear off.

But all told these simple folk were good and kind, and healthy and pure ; and, as far as buying and selling may admit honesty, they were honest.

When a man had something to sell the matter took a long time, because he would ask more than he expected to get. Everybody knew this because everybody did it. Hence these folk were not less honest than men in other countries where all assume dignity in keeping the price firm.

Among other things the folk had bristles to sell. One day the author, having paid a man exactly what he asked, was looked upon as a philanthropist throughout the village. But even in these exceptional circumstances the price was small. The little transaction took place in the province of Kovno. The price, paid in roubles, was equal to 11d. a pound.

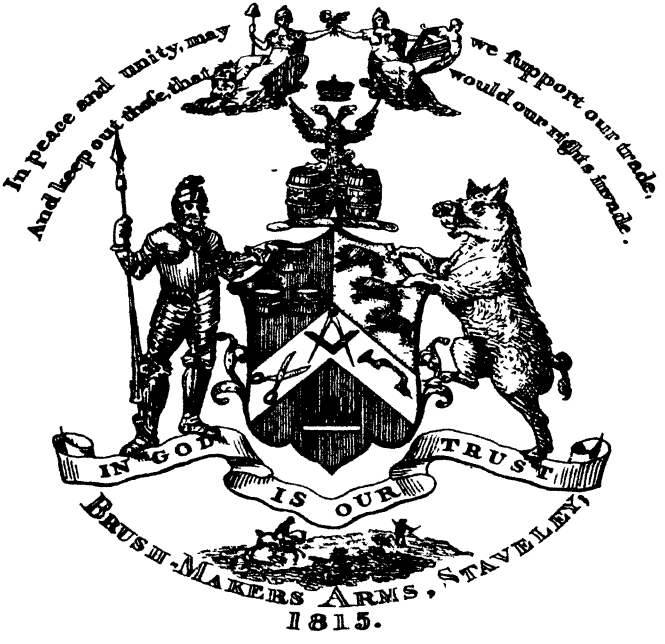
But bristles were no exception to the rule, everything was cheap. On another occasion the author paid the equivalent of 8d. for a roast chicken. This was to take with him on a journey ; it proved a good meal for him and his companion, the owner of the cart.

It was winter with snow hard upon the ground. The journey was a day long. On the way, here and there, was a convenient inn near which the horse would stop on his own account. A sack would be thrown upon him, his head-gear removed, and an armful of fodder from the cart would be thrown down upon the snow. The cart was almost full of this loose hay. The stuff served to keep the two men warm. But now they would go and sit near a big stove in the inn, and each would have a tiny measure of spirit the size of a thimble. Perhaps the men in the room numbered a dozen. Sitting among these the owner of the cart looked quite at home, but the author with his Melton coat was an unmistakable foreigner. All the others were clothed with skins. Each garment showed a number of odd furs all sewn together and made into a coat. Without any cloth to cover the innumerable seams these coats were stiff, greasy looking things. They were made with the hair inside. As none removed his coat in the presence of the hot stove the atmosphere was like that of a menagerie.

It was easy to make friendship. Without many words these folk soon knew you. They read you in your look ; they saw from your eyes the trend of your heart. They could trust you ; which meant they trusted themselves and had no doubt.

The peasantry in remote parts of east Prussia, known there as *Litaus,* belong to the same stock. The author, desiring to see these folk and hear them talk, travelled fourth class on the railways. This means that he sat upon his bag in a crowded truck where no seats were provided. It was made plain in large letters on the outside how many horses and how many people the truck was intended to carry. Of course the fares were cheap ; the speed correspondingly slow. Many sat upon the floor ; and others would lie down if there happened to be room enough.

The luggage was as interesting as the folk. A person's belongings may be as a key to his character. The various things the folk had with them were an index to their lives.


In peace and unity, may we ſupport our trade,
And keep out thoſe, that would our rights invade.
IN GOD IS OUR TRUST
BRUSH-MAKERS ARMS, STAVELEY,
1815.

STAVELEY BRUSHMAKERS' ARMS: DATED 1815

In one of these trucks one day there was enough material to weave a romance with, if poverty and simplicity could be the ideals of the one who wove it.

One man had a basket containing live ducks ; another had a rake in his hand. And there was a spinning-wheel close beside a woman.

The stopping places were mostly villages. At one of these a man boarded the truck with a pig in a bag. Here was a thing of interest to the brushmaker. Although the pig was small he had a good crop of bristles on his back, as could be seen through the coarse mesh of the sack. That it was a pig all knew by the noise he made when first brought in.

On being shown a small knot of bristles, which the author had with him, the man gave his name and address. He lived on the Russian side of the frontier. He was a swineherd.

It should be stated here that Russian swine produce bristles next in value to those of the native wild boar. The pigs, kept in herds, are quite different from the English animal that lives in a sty. The herded swine are narrow in body, they have legs that give them speed, and their large heads show their likeness to the wild boar. It could be said that whilst the Russian pig takes a pride in growing bristles his English cousin is content to grow bacon.

To hear folk talk about pigs is interesting. A butcher in Memel said that a certain man, with a view to improving his stock, once fetched some pigs from England. It seemed the man wanted meat-producing animals and, therefore, selected English pigs for their fatness. But in the end came disappointment. In course of time the imported stock lost almost all its English character. The change in climate and mode of life were the chief causes. Had the pigs remained in their native land they would have been kept in a sty, but in Poland they were in the charge of the swineherd. In England the pig has all his food poured into a trough, whilst his cousin in foreign lands may feed on the roots of trees. The one is kept in his little house with only enough room to turn himself round : the other has the liberty of the forest.

Climate has all to do with the growth of bristles. The stiffer and longer belong to the colder regions always. In the Baltic provinces, with the severe winter, the pig must needs have a good coat. The same applies to the wild boar ; the farther north the hunter goes the better bristles he gets.

When the author first saw a herd of swine in the charge of the swineherd he felt what a touching picture it would make with " The Prodigal Son " as title. The man, quite harmless in his heart, had a wild exterior. He was armed with a stick as thick as his leg. Nothing flexible would command the respect of the pigs. They were a thick-skinned bristly lot, with long snouts. The mouth of a pig is his means of attack, he would tear a walking stick to pieces and probably eat it.

In this respect the Russian pig is very aggressive. The swineherd would shout and tell you to keep away. But on your own initiative you would not go near, because the swine themselves are not inviting, as when they look at you they seem to set their bristles up.

On the necks of these pigs the bristles were long and stiff. In the same district—the province of Kovno—a bristle dresser had some on his bench that showed a good proportion of stiff, 4½ to 6 in. long.

When properly washed and combed all the various lengths would be tied up in small bundles, known as " Polish knots." The quantity of bristles in each would be a small handful, and the " knot " would be conspicuous for its string. Beginning at the roots of the bristles the man would wind the string round a dozen or more times and then, perhaps, make a loop at the end. As bristles are always sold by weight and the tie is included there was method in the use of string.

We will return to the swineherd. The man's task was not a simple one like that of the shepherd. Pigs do not keep together like sheep. No, the pig has a personality, he may go forth on his own account. In his wild state he will face the hunter by himself ; indeed, the wild boar, sure of his strength, will attack anything.

Whilst a sheep will never leave his flock the pig may get bored by his friends and run away. But two dogs would go after him ; he would have no peace till he returned. Though he may go off at a good speed he does not keep it up. The pig soon gets out of breath, he is only a sprinter ; dogs beat him in the end.

The two dogs that went with the swineherd had a wolfish appearance. Indeed, it would be easy to encourage the illusion and believe they were actually wolves themselves save for one touch of good nature, as when they came near you they wagged their tails, bent their ears down, and looked up at you with beseeching eyes. They were well trained, too ; they ran to their master the moment he blew his horn. The swineherd's horn, made of the horn of an animal, was by no means a musical instrument. Since it required a good volume of wind to make a sound it resulted in an odd blast.

In all this, one might say, here was a remnant out of the Middle Ages. In England in those times the pigs may have been just like these, and the swineherd just like this.

It occurs to the author that the pigsty in ancient times was used only for the sow with a young family, as in those days pig was the name of the young. The full grown animals were called hogs or swine. These would have free run in the villages and the towns, and would also be taken in herds to feed in the woods.

In the reign of Edward I swine wandered about in the streets of London.

We may get a little light on this from the *Liber Albus*, compiled A.D. 1419. The matter is that of a statute made in the year of Our Lord, 1273—

> That no swine shall be found about the streets or about the lanes in the City. Or in the suburbs or in the fosses of the said City (London) from this time forward. And if swine shall be found in the places aforesaid they shall be killed by those by whom they shall be found. And those who kill them shall have them freely and clearly without any challenge thereof. Or else the swine shall be bought back, by him who owns it, at the price of four pence. And he who shall wish to feed a pig must feed it in his own house. That such pigstyes as are in the streets shall be removed. And if any swine shall be found in the streets they shall be forfeited. And four men are elected and sworn in to take and kill such swine as shall be found wandering within the city: to whomsoever they shall belong. The swine belonging to the Priory and Hospital of Saint Anthony in Threadneedle Street, however, are specially exempted from this law: and they shall have free run at all times.

This statute referred only to the City of London. In the provinces all the swine had free run like those of "Saint Anthony."

In Russia there appears to be no law at all against the liberty of the pig: no, the pig is a social institution; he figures so much in the peasant's life that Russia could not be Russia without him.

Where there are no railways folk do not live in crowded streets, they must needs spread themselves upon the land. In Russia every man has room for a pig and he keeps one.

In some districts the pigs in charge of the swineherd may be a community; that is to say, the herd may be composed of pigs belonging to different persons. Indeed, a herd of sixty swine may have twenty or more individual owners.

The swineherd collects the pigs as he goes along in the morning and, on his return in the evening, he distributes them. In the morning the herd increases by slow degrees like a rolling snowball: in the evening it melts away. At the beginning of the day the man blows his horn and the pig leaves his home and runs and joins the herd. He may come out of a field, or a stable, or a back-yard, or a poor man's hut; it matters not, he will join the herd with equal right. His owner may be too poor to find food: the pig must go with the herd into the forest and feed on nuts and all sorts of things down to moist roots.

The pig is not only a scavenger but an excavator as well. At the end of his snout is a muscular disc to root things up with. This moves about like a button, and having two holes it looks like a button. The pig's keen sense of smell enables him to know what is hidden in the earth, he discovers the contents of the subsoil better than the geologists.

In Russia, as the author knew it, one might buy bristles of the town authorities. Some of the pigs that ran about the streets belonged to the council; they were kept as scavengers as well as food providers, and their bristles afforded a revenue. These pigs, like those of the herd, may be called semi-wild.

The English and Irish pigs once belonged to the same stock. But scientific breeding, as well as restricted area, has changed their character. In no other part of the world has the hog become so thoroughly civilized as in England and Ireland. In some way, we might imagine, the pig and the owner have certain interests in common.

One day a man was observed by a great landowner to be looking over a wall into the park. " Do you know who I am ? " shouted the rich man indignantly. " No," replied the other. " I am Lord ——." " Wait a minute," said the poor man, " while I lift up my pig and let him look at you."

In 1850 the bristles of English and Irish pigs had almost ceased to be of use to the brushmaker, and long before that time the quality had grown poor. In 1805 the brushmakers regarded them as inferior to Russian " seconds." A list of that date, agreed upon by the masters and journeymen, shows how poor the native bristles were from the high price the men got for dressing them. The matter proves also that Russia was the great unchallenged source of foreign bristles. So it remained, in some respects, fifty or more years.

In passing it may be of interest to make another comparison.

As the three bristle countries have different religious beliefs, as well as unlike surroundings, they must needs view the pig differently. In Russia the hog is respected by all classes, like he is in other Christian countries. In India the pig's friends are the poor, known as low caste. They cultivate him, sell his bristles, and eat his bacon. The rest of India holds aloof from the " devil " ; save the highest in the land, the aristocracy, who go " pig sticking " so they may eat him as game.

The difference between Russia and China, in the life of the pig, is largely due to the national economic conditions of the people. The reason for the swineherd in Russia is the vast forests ; whilst in China, with its over-population and no wildernesses, the swineherd is hardly known. With so many people everywhere in all the land there is no reason for the poor Chinese pig to leave his own street. So he lies about in the gutter and in the narrow ways, and the public tolerate him. He may sleep in the footpath and everybody will stride over his black, bristly body rather than wake him up.

CHAPTER IV

THE HAIRHAND

BRISTLES need considerable preparation before they are made into a brush. The man who does all this is called a hairhand. His work is interesting because it is clothed with mystery. As an old craft it requires skilled fingers, intuition, and a little care.

Here is a picture of the man's primitive surroundings. His bench is a firm structure. The front, upon which he manipulates the hairs, has to be dead solid. This may be a well-seasoned beech plank 6 ft. or more in length, 3 in. thick, and as wide as is possible to get from the tree. The rest may be thin boards. But the whole should be joined so as to make a level and smooth surface. The bench may be supported with trestles that have their ends fixed into the bricks.

With constant use the bench becomes nut brown, the oily nature of the hairs enriches it, the continuous friction gives it polish. The spot near the comb is the colour of an old violin. Just below the comb is a smooth board, less than a square foot, screwed to the bench; this is to press the roots of the hairs against to keep the handful level in the process of combing.

Fixed with its long steel points erect the comb sparkles as the danger spot upon the bench. But when not in use the points may be covered with a case. The size stick and the tying-up box show the simplicity of the hairhand's equipment. The stick is about 6 in. high, marked like a rule with quarter inches, and has a base of sufficient weight to keep it upright; the box is to hold a few handfuls of hair in making a bundle. Besides these are a pair of trimming shears, a small comb, and a bat, and there may be a knife made from an old razor.

The man wears two aprons, a small one over a large one. The first made of stiff leather, is about the size of his waistcoat, the other of leather soft and thin may reach down to his knees. There is no change in these things, and the habit of hanging the leather apron upon the comb at the end of the day is still the same.

The bench has to be rather high, so as to allow the man to stand up while at work at the comb. He will have other things to do in which he may be seated on a high stool. In the course of a few days the man may turn from "sorting" to "dragging," and then to "mixing."

For the moment we will assume that the man has a dressing of "high first" in hand.

To begin with we may hear him call bristles "hairs." In the case of Russian he describes them as "firsts" and "seconds"; the classification adopted by his union a hundred years ago as a means of fixing the rate of payment. Where various colours appear as rings in the bundle he calls it "bull's eye."

First of all he will open the bundle by pushing off the "bark," which he throws as a ring upon a peg on the wall for further use. Steadying the hair with both hands, with the thumbs pressed in toward the middle, he makes the bundle unfold itself before him. If the sort happens to be "bull's eye firsts" the layers of black and grey and white and yellow will almost fall asunder in the original handfuls of the Russian dresser. Some parts will be "spotty." The whole, however, has to be sorted.

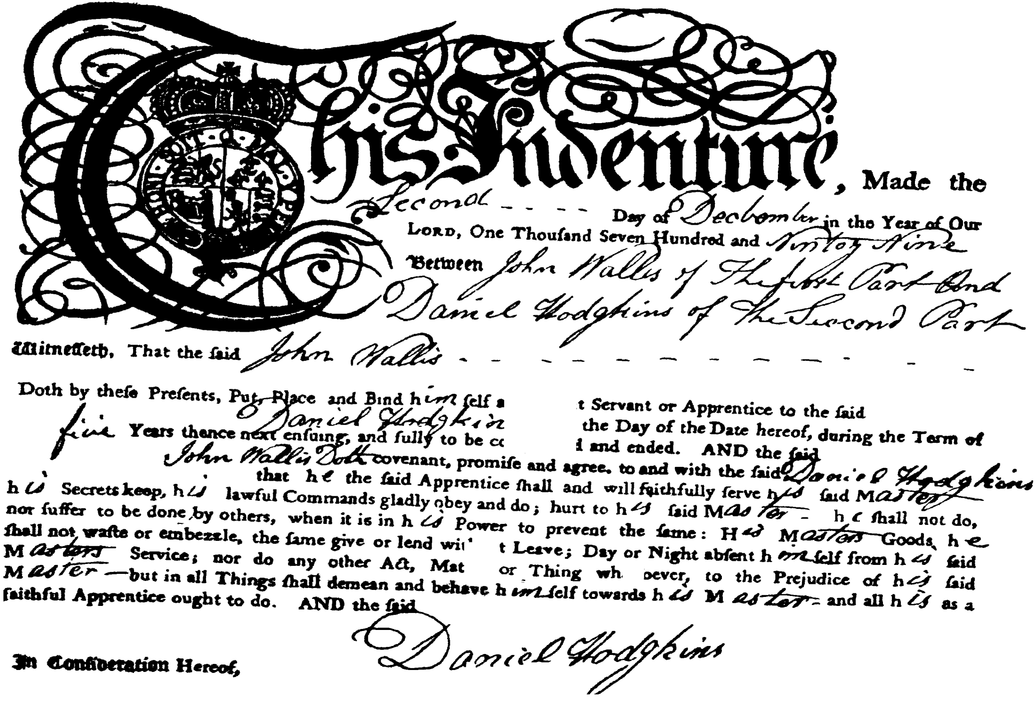
Sorting means separating the colours. This has almost only to do with Russian hairs, as those of India and of China are imported in separate colours. Sorting, however, may not be a difficult matter, but considerable skill is required in "dragging," and the work is important.

Dragging has to do with sizes. In their nature bristles vary in length always. On the crest of the wild boar they may be 6 in. long and more, whilst in other parts of the same animal they may grow short and shorter, to 3 in. and less.

For the present we will keep to "bull's eye firsts": a very satisfactory sort, yielding all the several colours and a good range of sizes. This leaves the hands of the Russian dresser in bundles of about 3½ lbs. neatly tied with bark, the inner bark of the limetree torn into ribbons and twisted.

The bundle is a compact thing. Bound at the bottom with three or four rings of bark the roots compose a hard mass, whilst a slender ring of bark tied a little above the other completes the security of the bundle. From the outside appearance it might pass, to the uninitiated, as containing bristles of equal length throughout. The carefully trimmed top with its rings of white and black and grey, together with the fine "capping," are touches that show the art of the Russian hairhand. But when the bundle is opened on the bench of the brushmaker and dragged, it may produce eight different sizes. The man will lay all these various lengths in order upon his bench, each being a ¼ in. less than the other, from, say, 5¼ down to 3½ in.

We will look and see how he does it. First he stands at the comb manipulating a handful. The handful, so called, is really the quantity of hair held with both hands in the process of combing. It looks a dangerous business. The man's fingers dance fearfully near the sharp points as he bangs the handful into them and draws it out again. The points disappear and flash again in



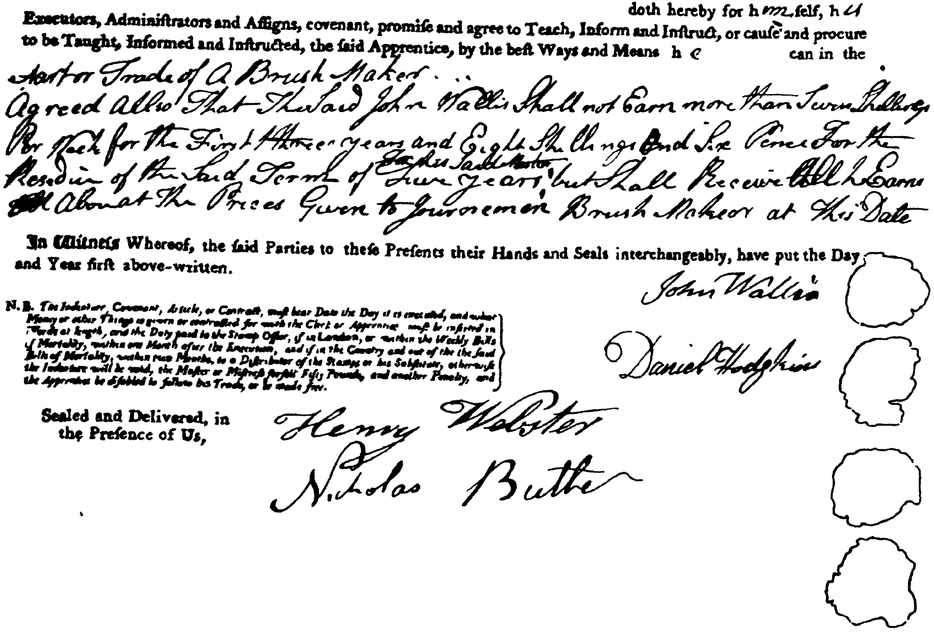
This Indenture, Made the Second - - - - Day of December in the Year of Our Lord, One Thouſand Seven Hundred and Ninety Nine Between John Wallis of The firſt Part And Daniel Hodgkins of The Second Part

Witneſſeth, That the ſaid John Wallis - - - - - - - - - - - -

Doth by theſe Preſents, Put, Place and Bind him ſelf a t Servant or Apprentice to the ſaid Daniel Hodgkin the Day of the Date hereof, during the Term of five Years thence next enſuing, and fully to be c d and ended. AND the ſaid John Wallis Doth covenant, promiſe and agree, to and with the ſaid Daniel Hodgkins that he the ſaid Apprentice ſhall and will faithfully ſerve his ſaid Master his Secrets keep, his lawful Commands gladly obey and do; hurt to his ſaid Master - he ſhall not do, nor ſuffer to be done by others, when it is in his Power to prevent the ſame: His Masters Goods, he ſhall not waſte or embezzle, the ſame give or lend wi t Leave; Day or Night abſent himſelf from his ſaid Masters Service; nor do any other Act, Mat or Thing wh oever, to the Prejudice of his ſaid Master—but in all Things ſhall demean and behave himſelf towards his Master and all his as a faithful Apprentice ought to do. AND the ſaid

Daniel Hodgkins

In Conſideration Hereof,



doth hereby for h*im*ſelf, h*is* Executors, Adminiſtrators and Aſſigns, covenant, promiſe and agree to Teach, Inform and Inſtruct, or cauſe and procure to be Taught, Informed and Inſtructed, the ſaid Apprentice, by the beſt Ways and Means h*e* can in the

Art or Trade of A Brush Maker ..

Agreed Allso That The Said John Wallis Shall not Earn more than Seven Shillings Per Week for the First three years and Eight Shillings And Six Pence For the Residue of the said Term of his Said Master Five years but Shall Receive All he Earns Above at the Prices Given to Journeymen Brush Makers at this Date

In Witneſs Whereof, the ſaid Parties to theſe Preſents their Hands and Seals interchangeably, have put the Day and Year firſt above-written.

John Wallis

N. B. *The Indenture, Covenant, Article, or Contract, muſt bear Date the Day it is executed, and what Money or other Things is given or contracted for with the Clerk or Apprentice muſt be inſerted in Words at length, and the Duty paid to the Stamp Office, if in London, or within the Weekly Bills of Mortality, within one Month after the Execution, and if in the Country and out of the the ſaid Bills of Mortality, within two Months, to a Diſtributor of the Stamps or his Subſtitute, otherwiſe the Indenture will be void, the Maſter or Miſtreſs forfeit Fifty Pounds, and another Penalty, and the Apprentice be diſabled to follow his Trade, or be made free.*

Daniel Hodgkins

Sealed and Delivered, in the Preſence of Us,

Henry Webster

Nicholas Butler

(b)

A BRUSHMAKER'S INDENTURE. 1799

rapid succession, and the comb rings mournfully like a muffled harp.

Now and then the man takes a brief moment and turns the handful right about and greases his comb, and the muffled harp begins again. Again he may break off and sweep his hand to the back of the comb and clear away the " riflings." These disappear under the bench with one stroke ; he may grease his comb the same moment.

Grease has a twofold use : it assists the comb and feeds the hair. Bristles become stiffer, freer, livelier with a little friction and a drop of oil. In like degree the small finger sample taken from a bundle and freely handled may become better than the bulk. The moisture of the hand, as in testing the stiffness, will do this in a little while. The hairhand makes his grease of Russian tallow and train oil ; these are soon amalgamated in a tin over a stove. The smell of it belongs to the hair bench, as from the beginning of the craft.

When the man has combed a few handfuls he will sit down and " drag." There are two ways in dragging, one is with the knife, the other with the fingers alone. The knife is held in the right hand. The blade, projecting from between the first and second fingers, is pressed against the thumb. With the left hand the man holds the bristles against his leather apron with their " flag " uppermost, the roots resting upon the bench. The hand moves from the wrist only : it turns sharply as the " flag " is caught between the knife and the thumb. So many of the bristles as may be held with the edge of the blade are drawn up at a time. They rise in a little row of numbers thick, and row after row springs up at the turn of the hand and the knife.

When the whole surface has been gone over the raised hairs are taken out with the hand and laid upon the bench, in the place allotted to the size, and then the next size—a ¼ in. down—is " dragged " off in like manner, and so on until none above 3½ in. is left. This " 3½ " is called " bottoms," it is classed as " taper," whilst all the other sizes are called " solid."

" Dragging " with the fingers alone differs from that with the knife in minor points. Instead of the roots of the hairs being held upon the bench the handful is pressed sideways against the man's breast—against his hard apron, and the tips of thumb and forefinger do the work of the knife. This is the older method and, in some respects, the better. The movements of the hand are different, more rhythmic, more dexterous, and, what is more important, the fingers are kinder to the " flag " than is the knife.

As each colour in turn is dragged the sizes are tied up in bundles of a few handfuls. But before this is done each size may have to be " mixed." This is called " mixing dragged hairs," a process by which the hair is made even in colour and solidity.

In " dragging " quarter-inch sizes all above one size must needs go into the next, so that when the hair is tied up without " mixing," as is sometimes required, the top appears uneven, or like stepping stones, and the general colour " spotty." But, at the moment, we will take the alternate case : the hair is to be mixed.

First the man will " row down," keeping, of course, all the sizes and colours separate. " Rowing down " is to place the hair in thin layers, one upon the other, along the bench. This is done to equalize differences that happen in quality and colour, and to break up the stepping stones we have pictured just now.

When mixing at the comb begins the man takes his handfuls from the end of the row. If he happens to have a large mixing in hand, and the row appears as a wall of hair, he will need a couple of skewers. With these he pierces the row in sections, one by one, progressively towards the left, moving the skewers as the handfuls are wanted. So the hair is held up at short stages to the last handful.

The method of layers, seen in "rowing down," is continued with the handful at the comb. With a few brisk strokes the hair is first made free and adaptable. Now the man will turn it about, "cut" it, and lay one half upon the other, comb it again, "fan" it, or perhaps "row" it thinly upon the bench and fold it like a fairy garment and the next second put it through the comb again. Where the "bend" is important the man may keep to one method and only "cut."

The various movements are almost magical. In combing first the "flag" and then the "root" the handful will turn a somersault or go quickly right about. In all this the hard leather apron, the smooth board below the comb, and the solid bench take their parts. Against the first two the "roots" are alternately pressed, upon the other they are banged. We have compared the comb to a muffled harp, the sound of the bench is like the muffled drum, it is heard at short intervals as in a funeral march. It is called "knocking up." It is to knock up the roots to the level mass from which they seem determined to escape. Indeed, it takes all the man's genius to master their slippery nature. But herein lies the charm! for, whilst high-class bristles may baffle the apprentice by their smoothness, this rare quality enables the master to work miracles almost. In his hands how thinly they may be spread! The gossamer would seem not more wonderful: the wing of a bird not more quick.

In a minute or so, when the handful may have become evenly mixed, the man will glance at the "flag." He holds it a second with the roots down upon the bench and scans the top. The man may be satisfied it is well mixed and the top will look like velvet.

Now he will lay the hair across a piece of bark in the tying-up box. With a few handfuls he will make a bundle, so even, so solid, so uniform, as to be very pleasant to look upon. He will stroke the side with a comb so that not a hair shall be out of place. Of a truth a bundle of dressed Russian "firsts" has a real charm for the brushmaker. Wherever he may come upon it he will be drawn as by a magnet. He will take the bundle carefully up in his hands and, with thumb upon the roots and finger a little above, he will make the bristles chatter!

For certain kinds of brushes such as high-class hair-brushes, the white and the yellow bristles have to be "engined." That is to say, graded according to their stiffness or stoutness.

"Engining" is done by drawing the bristles in three or more combs or "engines" of various grades. These are fixed upon a bench side by side. In the process the hairhand begins with the coarsest. The bristles have already been well combed with the ordinary comb. Now the man takes a quantity and holds it in a thin layer between two brushes. These are placed so as to allow the roots of the bristles to project out at the front in a layer. The brushes are pressed together with both hands so tightly as to admit only the few bristles that have thickest roots to be drawn out. In other words, the teeth of the "engine" hold these by their roots whilst all the rest are drawn away.

As will be seen, the process is possible only because bristles happen to have roots in the shape of knobs and that the stouter bristles have the larger roots.

The bristles retained in the first "engine" may be called extra stiff, those in the second medium stiff, and those in the third stiff. When they are all tied up in bundles they may, perhaps, be labelled XXX, XX, X, respectively. All the others, whose small roots escaped the teeth of the third " engine," are set aside for less costly brushes.

Another ingenious thing for the hairhand to do is to deal with " turned hairs." In most bristles dressed abroad there is an occasional bundle that has a few bristles turned the wrong way. These rebel hairs cannot be allowed to remain with their roots uppermost. They are, fortunately, only a small minority like men who sit with their feet upon the chimney-piece.

The hairhand has two methods. One is to draw all the " turned hairs " out with an " engine " of extra fine gauge, the other is a secret handed down through many generations of the craft.

As is the case of most secrets this is perfectly simple. The portion containing the turned hairs is placed in a thin layer upon a smooth surface and rubbed with a stick. The stick, which may be beech, should be about a foot in length, and well-planed on four sides so that the corners shall be straight and sharp. The stick held with both hands at a right angle to the bristles is pressed upon them and rubbed up and down. The friction causes the bristles to separate and go in two opposite directions, roots foremost. To the uninitiate the thing looks like magic, he is at loss to know why every bristle should go from under the stick root first, and having all got free, they should form two different groups, one having all roots down, the other all roots up.

To find out how this is done we must take up some of the bristles and look at them. To the normal eye a bristle appears as a slender, horny thing with a tiny bulb at one end and a few feathery points at the other.

The first is simply the root, the other is known as the flag. The rest, smooth and transparent, tapers upward toward the flag.

Smoothness is one of the chief qualities. A bristle may be drawn between the fingers either way with equal freedom almost. The difference is so slight and subtle as to need the sensitive fingers of the hairhand to detect it.

For your amusement the man may take up an odd bristle and hold it between his finger and thumb and, with a slight chafing movement, make the bristle run through his fingers like a thing alive. This happens because there are minute scales or hairs upon the bristle that grow towards the flag. From the friction of the fingers, as from under the stick, the bristle simply takes the course of least resistance, which is root first. Add to this the fact that a bristle always tapers to the flag and you have the secret.

CHAPTER V

THE PANHAND

THE panhand is one who at his best sets bristles with pitch into a broom stock, and on other occasions various fibres and mixtures. There are many grades in bristle brooms, endless different qualities in others mixed with horsehair, and again where fibres enter.

The bundle by his side may be a mixture: the panhand does not mind so long as it is well mixed, clean, solid, and straight. In choice of materials he is a creature of circumstances. But he may be setting pure bristles, so the matter, for the moment, is simple.

His name is panhand because he sits at work at the pitch pan. He may be one of four as the pan-frame has four sides, with the pan exactly in the middle. So the four men have equal positions, each with a narrow plane before him just enough to hold his materials and his broom, and each the same distance to reach to dip his "knot." A knot of bristles is the precise quantity set in each hole in the stock.

The pan is made of copper, it is round, and has four equal spaces formed of necessity by the four "strikers." These are pieces of copper set on edge in position a little higher than the rest of the pan; they are to strike the knot upon to relieve it of superfluous pitch before it is tied. Each man has his own striker.

The pan rests upon a stove. The pitch, though never allowed to boil, is kept hot—hot enough to scald the apprentice's finger when he has not measured his "dip."

Dipping is an art. When the precise knot is chosen it is held between the thumb and finger in a special way. With slight thumb-pressure the " roots " are spread like a fan. As bristles are always set by their roots we are reminded they grow that way. Dipped fan-like all the roots take the pitch quickly. Speed is everything in a craft that requires little bodily strength. But the skilled workman is unconscious of speed. His speed is his habit, that is all.

The moment the knot is dipped it is tied with a " thrum." Thrums are yarn cut in short lengths. Each man has a bundle in his apron strings in front of him. The knot is dipped a second time and promptly set. The manner of setting is to push the knot to the bottom of the hole and turn the stock. It is a quick movement in which the stock turns a somersault and returns to the " horse " again. The horse is really a wooden saddle to rest the stock in. All this may call to mind the acrobat who turns in the air and falls into the saddle again. The horse upon the pan-frame, old as he is, may have got his name from the circus.

While the stock is in motion the knot is held firm, it is not liberated from the thumb and finger till the broom is back in its place. In this movement two things of importance have happened. The pitch has been spread inside the hole in all the grain of the wood, and the knot has been given a bushy look in the sudden twist it received. If the knot does not behave in this way the man will spread it from the middle with the tip of the finger.

The panhand's fingers have a keen sense of quantity. The finished workman knows to a hair the size of his knot. His method is to hold a handful with his left hand with the roots uppermost and take the small quantity with his right thumb and finger. Though this is all done in a second the quantity shall be so exact that, when dipped and tied and dipped again, the knot shall fit the hole as nicely as a pencil fits the holder.

The panhand's method is so perfect that he may make a dozen brooms within an ounce of a given weight of hair. In all this two important things have to be considered. One is the size of the " bit " with which the holes are bored, the other the evenness with which they are filled. If in the first dozen brooms the man happens to use a few ounces above the proper weight he may take the " bit " in hand and reduce it by an almost imperceptible difference. All this is done by hand without the means of a gauge.

The panhand has nothing to do with mathematics. Size is relative, that is all. He may have in mind a difference of only two ounces in a whole dozen brooms, and he may stroke the bit with a file so skilfully as to put the matter right.

Besides all this the nature of the hair has to be understood. The bend in bristles is a graceful way of their own that cannot be permanently altered. They may be got straight by a process of tying-up in moist condition and baking, but they soon fall again into their natural state.

In some sorts the bend is very marked, in others slight and beautiful. The latter is a characteristic of the best. For the moment good bristles shall be considered, the man we are talking about shall be making best brooms.

Slight as the bend may be the good workman will detect it immediately, the hairhand will have turned all the bends one way and the panhand will fashion his broom in accordance. That is to say, that, in skilful setting, the arrangement of the bends may give symmetrical shape to the broom.

But the interest of the panhand in the perfect form of his broom begins before this. In the first place, he is found at the lathe boring. The brushmaker uses a spoon bit. This requires skill and care to get it into condition and keep it fit. First the bit has to be set into a wood chuck by means of hot lead. He does all this himself.

In " putting up " the bit the experienced workman will have it " dead true." A hair's breadth out of centre will not do for him. In his hands the bit is a wonderful instrument. To get it to perfection he cutters it from the inside and uses the oil stone from without. In this way the nose and the cutting side of the bit are given a razor-like edge.

The cutter may be made out of an old file. This is ground at the end to a sharp angle. Two of these are required, one made of a round file, the other a triangular one.

In the lathe the bit in motion shines like crystal, and there is magic in the way it enters the stock and scoops out the borings. The holes are bored at certain angles with a view to the " spread " of the broom. The man takes up the stock without any previous " marking out." It is all a matter of memory and sense of proportion. He stands at the lathe and simply begins.

The holes are made in rapid succession, all in their right places without the aid of any gauge, and every hole almost at slightly different angle. The man employs the same faculty here as in setting, all with a view to a well-shaped broom. He is an artist because he holds the stock in his hands and proceeds with free will—an artist because he controls all the variable angles, every fractional difference that goes to the shaping of the broom !

The lathe may be driven by a motor. A few years ago the man would have treadled it himself. The treadle would have been two strips of wood forming a right angle, one having an iron eye affixed to it would be linked to the crank in the wheel by a long hook.

In starting his lathe the man would treadle a moment or two and get the wheel going a good speed before proceeding to bore. The wheel might weigh a hundred pounds. With this at full speed the man would have to keep his foot in touch with the treadle, otherwise the hook would jump and leave the crank. Though all this belongs to the old days the author may be allowed to dwell upon the quaint details, as during many years he worked in the same way himself. The recollection is pleasant. Few things, however, have changed. The atmosphere of the pitch is still the same and men sit around the pan.

We will return to the man at the lathe. With a dozen or more bored stocks he comes back to the pan. He has been away an hour perhaps. He will now sit down a good portion of the day. He has joined his friends again : he is again one of the four. Having picked up his bundle of thrums he will set " knots " in perfect order, everyone showing a little bead of pitch around the base of it. The bead is one of the subtle things that prove him master of his craft.

The work at the pan is of a quiet nature. This is important to the men. No rumbling machinery clashes with their conversation. They have not to shout as men do in a steam factory, where words are cut short as though every one was a deaf person. The quiet sense of the pan-frame is favourable to intellectual discourse, hence the panhand may be better informed than men who live half their lives in a foundry amid the noise of thunderous hammers. Machinery may be wonderful to construct, it may be a means of producing luxurious things for many, but it has an evil effect upon the man who is compelled to put up with its never ending noise.

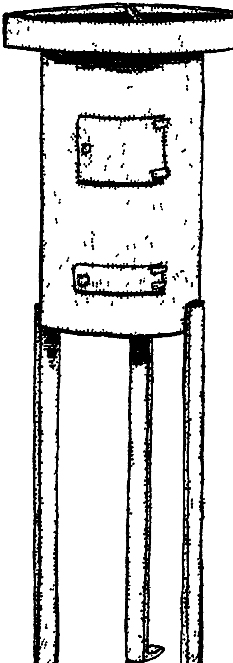
The men around the pan use no other means than their own skilled fingers, they have nothing in the nature of tools near them. They are as primitive men. God gave them hands, they are satisfied in using them.

Panwork must needs be an old branch in brushmaking. Indeed, it may be the original tree. The secrets of the old brushmakers began with their use of bristles and hairs, of this we may be sure. The masters of the type that formed the guilds would have interests in better things than reeds and rushes and fibres. The panhand, it would follow, would be employed solely with the mysteries of hairs; he would make brooms and other brushes in which the hair would needs be "set."

To the author the pan-frame suggests tradition. Without any record to go upon the thing itself is enough to feed the imagination. The simplicity of the structure, together with its unalterable limitations, stamp it at once as being ancient and enduring. A relic of the past, a necessity of the present, the pan-frame is so simple that no genius may change its character. The little square structure, held together with bolts like an old bedstead, simply defies time.

The same old tradition finds sympathy in the men who sit around it. As well-trained workmen their method is exactly the same as their forbears: they have had the secrets handed down to them.

The duties of the apprentice belong to the old days, too. The pan-frame has to be given a coat of whiting every day: the apprentice does all this, so that the men may have a white board to begin the day with. So, *too, the boy breaks the pitch in the barrel and fills a* whitened tray with it, so that the men may have pitch always near at hand to feed the pan with.



PITCH PAN AND CHARCOAL STOVE, 1825

To be true in detail we must not forget the change in the fuel. In the old days, before the pan was heated with gas, a charcoal stove was used. The old pan and stove combined was a thing of charming simplicity : like the pan-frame it was made for use and nothing more.

Things made solely for use are mostly symmetrical. The pitch-pan with its charcoal stove was exactly so : indeed, its simplicity had a sense of dignity. Standing upon three legs, in the middle of the frame, without any superfluous detail for " ornament " the thing was above criticism. With feet resting upon the floor, head rising out of the " frame," it had long legs of necessity. The proportion of the legs to the body was spider-like. It stood alone without any support from the frame, so that it could be lifted bodily out to be cleaned.

In those days the apprentice, having a small box of charcoal by his side, would feed the stove piecemeal keeping the heat as even as possible. And the two small doors, one at the fire hole, the other to use as ventilator, would be opened and closed alternately many times during the day.

In the morning the charcoal was put into the stove together with a quantity of tinder, and the fire was lighted with the aid of steel and flint. So there was often a good deal of blowing from the mouth of the apprentice whose duty it was to keep the fire going all day. When his wind failed he used the bellows.

The pan, however, like the frame, is unchanged. Save for the passing of the charcoal stove all the technicalities of the pan, as we know them now, have been handed down from master to apprentice, through many generations. As trade secrets they were never published, but given only to those admitted to the craft.

In the times of craft guilds the number of apprentices was severely restricted. In any trade the master would have to attend his guild, not only to purchase his freedom as a master-craftsman but to enrol his apprentice. The restrictions extended to the number of men he should have. Indeed, the chief business of the guild was to prevent overcrowding. With this in mind the guild brethren would meet in secret and discuss their interests within closed doors. Every brother craftsman was expected to be an upright person ; if he owed money to another of the guild the wardens would enforce payment. He was not permitted to engage another's servant before the end of the servitude. The guild would also regulate wages and make other conditions of employment. But no delegate from the employed was allowed to attend the guild. In those days there was no recognized working-class interest. Any organization of workmen was looked upon as conspiracy to be put down by force.

In Germany, in the fourteenth century, the master brushmakers had a guild that operated in all the various provinces and a good portion of Poland. The head of the system was in the old city of Nuremberg.

In England the brushmakers had no charter and, consequently, no hall of guild. They met, however, all the same, and conducted their affairs in secret like the rest. It is quite reasonable to believe that many master brushmakers belonged to the guild of wood turners, with whom they were associated through the common interest of the brush stock.

As touching the merits of brushmaking no craft brotherhood could have admitted the besommaker or any such person as was engaged in converting a fibrous shrub into a broom. No, the brethren put all their faith in brushes made of bristles and hairs! There are no secrets in the shrub. The besom stands confessed to everybody, whilst the mysteries connected with the hairs of wild animals are enough to dazzle a schoolmaster.

And these would be among the mysteries into which the apprentice panhand in those days was initiated. Now we may be sure the panhand was a person to be respected: he is still! His broom, made of all hair, with all its mysteries, is an honest thing!

CHAPTER VI

THE PAINT BRUSH MAKER

THE old masters, we may be sure, made their own paint brushes. A little light upon this may be got in the art galleries. In many a painter's portrait of himself the paint brush appears as a charming detail, and though slightly drawn as a rule, the make of it may be traced. In certain cases the brush shows the hand of the painter : of a surety he himself bound it with string.

All this is more than interesting : it is illuminating ! The paint brush may be a key to the painter's character. This thing may open, perhaps, some secret of his art.

The hair of the brush may be short and firm, or long and pliant. The brush may have a point, or it may be dumpy. It may be round, or, perhaps, pressed flat. All these variable differences have meanings, that is to say for those that move upon the plane of the painter.

In present days of mass production the paint brush has become standardized : the modern painter buys his brush at a shop. Perfect as it is the thing has no special interest because its individual character is gone. Many may paint with the same sort of brush with similar effect. So we grow more alike : move all together and get good or bad results on a grand scale. Collectively we have become mighty ; individually weak.

In the old days before the painter was supplied with brushes with bright nickel ferrules and polished handles and bristles carefully bleached, he made his own with string and a stock, and bristles the natural colour of the hog.

The hog's-hair brush is an ancient thing : it was greatly prized by painters in the Middle Ages. Giotto, who was born in 1266, tells us this in a moment of good humour. One day he and a few friends met a herd of swine. One of the herd ran against the painter and knocked him down. Giotto sprang up with a light heart and, saluting the pig with a graceful bow, exclaimed : *" Well done ! I have made many a florin out of your bristles and yet have never offered you a bowl of soup ! "*

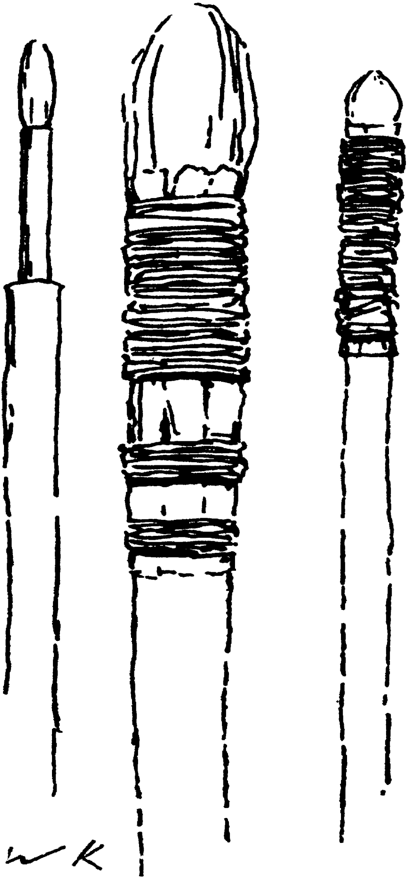
We will think of this Florentine in his studio : imagine him, with all his fame as painter, making a brush for himself.

Having first selected some hog-bristles he would tie them round the middle with string, taking care that their natural bends shall all be turned toward the centre, and so form the dome-like brush he required. He would be careful, also, to allow only the " flag," or soft ends of the bristles to compose the point ; on the other hand, all the roots would be set into the stock. In this state the thing is called a " knot." As to the stock the painter would, perhaps, cut it from a tree in his walks.

When the stick was pared down to the thickness of the knot it would have strips of thin leather or parchment bound upon the end to form a tube. Into this cavity the knot would be set with warm shellac and bound while in a malleable state.

Sometimes quills were used instead of leather. These would be dipped into hot water to soften. In their pliant state they would be cut open and placed with their hollow sides next the bristles and bound in the way described just now.

The length of the stock was a matter of importance to the painter. In laying in his picture in broad masses he may have painted, as from the shoulder, with a brush with long handle. This would enable him to



ARTISTS' BRUSHES—17TH CENTURY

stand a few feet from his work and see the general effect at every stroke.

The pictures of several masters suggest this method of free handling. It is no secret that a paint brush with a stick 3 ft. long was used on occasion by Velasquez; and that Gainsborough would sometimes paint a portrait standing 5 ft. away from the canvas.

The old Italian painters used, sometimes, pieces of cane for the handles of their brushes. The tube-like structure of certain canes makes them easily adaptable. In making the smaller brushes the hair was set in a quill and the quill inserted in the hollow of the cane. In the large ones the hair was set in the cane itself. Sometimes, as in the case of the big brush with handle 20 in. or more in length, the hog's hair would be set in a cane with a slit in the end. This would be sprung open to receive the hair and, when all had been carefully placed, the cane was bound with string.

The method is Oriental: the Chinese made paint brushes with cane handles a thousand years ago; and they make them now.

So we are reminded that in the art of painting there is no new thing!

The tradition of the long-handled brush is upheld by the scene painters: they have the bristles a good length, too.

The needs of the house painter or decorator are different; he may buy a short handled brush and cut a piece off and make it shorter still. He has to get an even surface; the paint must be perfectly smooth; no brush marks are permissible on a door.

In Egypt, where the ancient artist painted on stone, the brush used was made of a palm leaf stalk. In most palms the stalks are composed of a bunch of fibres encased with a stiff husk. In certain species the fibres are pliant and fine.

In making his paint brush the Egyptian would cut a stalk about a foot in length and peel off a small portion of the husk at one end to the depth of the hog's hair in the modern brush. With this he rubbed his colours into the stone, using pigments that became embodied in the surface.

The art of stone illuminating was once pursued by the memorial artists in the English villages. On occasion one may see specimens now. But as the English climate is not favourable to their lasting qualities most have become effaced. A few remain, however, of which it might be said they have defied time.

Three comparatively modern examples, dated about 1740, may be seen in the county of Leicestershire. In the quiet little village of Woodhouse these stones occupy a sheltered corner close by the church ; they are the tombstones of a family named Heanes. Perhaps it would be correct to say slates from the old quarry of Swithland, three miles away. The illuminated parts are the family crest at the head of each stone. They are all by the same artist: the colour, toned and mellowed by time, is inexpressibly charming.

In most languages paint brush and pencil are one and the same thing, but in English, whose words are rich with shades of meaning, the two things have distinctive names.

When we look at what is known as a camelhair pencil we have a thing as ancient as it is simple. We may imagine this in the hand of the illuminator of the twelfth century. He would make the tiny brush in the manner it is made to-day. The many centuries that lie between the monk at work upon a holy book and the modern lithographic artist have not changed the quill pencil in the least. It is so simple that no improvement has been possible ; so easy to make that nobody has any reason to alter the method. All the difference permissible would be in the nature of the thread with which the hair is bound : the hair and the quill remain forever the same. In the best modern pencils the hair is bound with silk, but even so, silk may have been used in olden time.

Brushes made with tin ferrules were not in favour with the old masters : all metals were regarded as more or less chemically antagonistic to the brilliance of the pigments.

In other days the feather itself was employed as paint brush. The use of this, beginning in prehistoric times, lasted to the days of our own grandfathers. The pinion from the wing of the woodcock makes a perfect little water-colour brush. It is the small speckled feather that the sportsman wears in the band of his hat. As there is but one in the wing the feather is prized.

If we were better informed about the ancient art of China we might find that the feather played a more important part still. All Chinese art suggests the use of a delicately soft brush or feather.

The Chinese painter has such feeling for subtle outline and tone as enables him to paint with primary colours and make them soothing to the eye. With a few strokes, as with a feather, he gives the sense of movement to a bird and a reed ; he paints a flower that trembles in the air and he paints his lady as a spirit with perfect face and hands, and the creaseless robe of a saint for her body. Ah ! there is nothing carnal here : he makes no *likeness* of anything !

So sensitive are the Chinese to the beauty of this softness that they write with a reed or with a brush : the steel pen finds no favour with them.

As a western invention the hard pen may indicate the trend of civilization. We may do well to think the matter over. Sharp and rigid line may be the stumbling block of Western art !

To look at the work of the artist-scribe of ancient China is to feel he must have used the hair pencil long before the Western had anything to write about. Of a surety nothing in the painter's outfit looks so ancient and eastern as the camelhair pencil in quill.

To-day camelhair is the general name given to a variety of hairs. The hair-pencil maker may produce his best " camelhair " brushes from the tail of the squirrel and the cheapest from the hair of a Japanese pony ; goat hair is among the rest. All this may appear strange to the uninitiated, but to the trade it is regarded as a technical matter. And to meet the situation the Brush and Broom Trade Board has adopted the term " camelhair " in the general sense.

The tail is the only part of the squirrel that matters to the brushmaker. Tail-hair is usually darker than that of the body, and longer and more elastic. The dark grey hair of the Siberian squirrel makes very desirable pencils and small varnish brushes.

The perfect pencil is, of course, a sable one. The animal is a species of marten, *Mustela zibellina*. The hair is dark brown, sometimes almost black, as the name implies. It is a Slavonic word ; the Russians pronounce it *sobol*. The hair is known to artists as brown sable as distinguished from another hair called red sable.

" Red sable " pencils are made from the tail of the kolinski, an animal a little less than the sable. The hair is bright goldy-red, and is valued by artists for its resilience. The kolinski, like the sable, belongs to the marten tribe. Both are found in Siberia.

The polecat and the skunk are other members of the marten family. The coat of the polecat is composed of soft underfur of brown, out of which rise sparkling black hairs known to the trade as fitch hair. The skunk has the darkest hair of all his tribe, hence he is called the black marten. The hairs of either are of use in making small varnish brushes and the like.

We may be sure the wild animals of Russia and the brushmaker's craft are inseparable. To begin with the coat of the sturdy wild boar and end with that of the agile kolinski, we have a range of hairs as complete as it is interesting.

The Siberian ox and the Russian bear are included. The former has long hairs in his tail of which fine lining pencils are made, the other's hair adds to the variety of quill brushes in general.

It should be borne in mind that the word fitch, apart from the polecat, is the common name of the small hog-hair brush.

The modern hog's-hair fitches are composed of tin or albata ferrules, set with the white hair of the Russian hog, and mounted upon a longish stick, smooth and polished. The ferrule tapers slightly to one end. The knot of hair is dipped into resinous cement, pushed through, point foremost, to the taper end, and set the required length out. It is all done with thumb and finger.

The making of paint brushes has long been divided in two main branches, strictly speaking, two separate trades—that of the hair-pencil maker and that of the painting brush maker. The former is closely associated with France, the other is a craft in which the British workman excels. His chief occupations are the making of the English sash-tool and the one-knot, copper-bound paint brush, and also certain varnish brushes.

CHAPTER VII

THE ENGLISH SASH-TOOL

PERHAPS nothing in bristles requires more skill than the making of the English sash-tool. " Laying the knot," which is the chief thing, baffles description, and to watch the workman and see him do it is to be but little less puzzled.

The English sash-tool is made in two different ways, known as " socket " and " fork." In the former the hair is set in a hole in the handle, in the other it is set between two pointed projections. This is the more general.

First of all the man fixes up six to nine handles in a clamp and saws out the fork to a depth marked with a compass. The first sawing is two downward cuts in each handle, which is done with a tenon-saw. Then with a bow-saw, making a curved under-cut, the cavity is made. When a considerable number of handles have been sawn the man takes each one and finishes the " fork " with a chisel. The blade of the chisel is usually 2 in. wide. The man may now take all the handles to another bench. Here we see the cement pan, the hot-plate, a comb like the hairhand uses, and a pair of scales.

In weighing the portions for the knots the bend of the hair is kept intact. The scale upon which the hair rests is a square piece of tin made hollow so as to keep the " bend " up. When the man takes the hair from the scale he " puts it through the comb," " knocks it up on the flag," and then " lays the knot."

Laying the knot is done with three distinct movements of the fingers, in which the roots of the hair are first held upward. The thumbs play an important part ; they press into the hollow formed by the " bend " and take their turn in folding the hair in toward the centre. For a brief second the knot resembles the form of an open lily, and the next moment that of the bud. Instinctively we count one, two, three, and the thing is done ! A poet might exclaim : " Wonderful ! " His fascination would arise in the strange relation of rhythm and the man's hard hands, the sensitive manipulation of the white hair with strong brown fingers. Or, in the case of the small " sash," a giant folding the wing of a small bird.

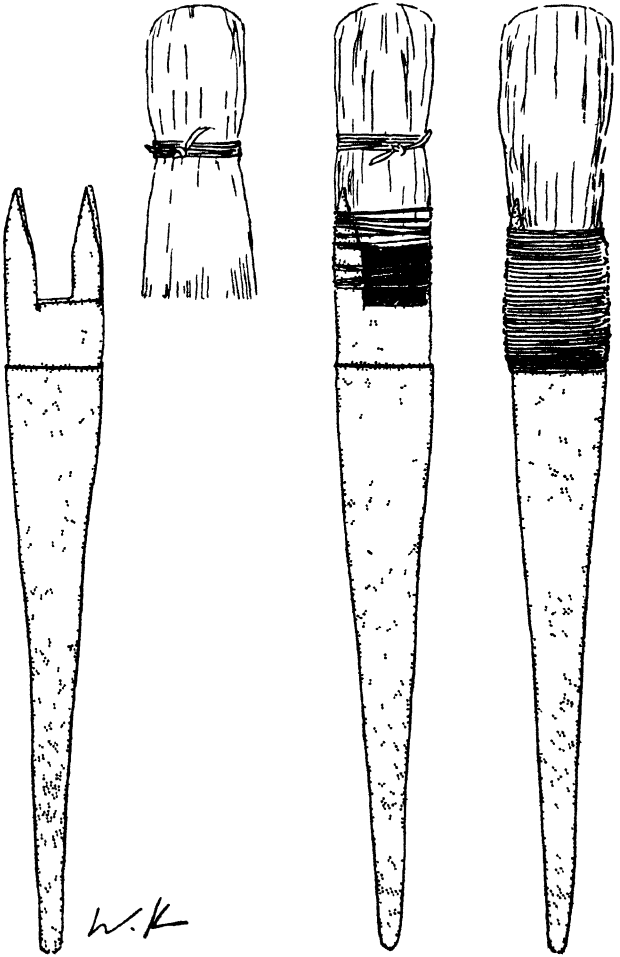
In the next movement the knot is " tied up." This is done tightly with three rings of string about two-thirds up toward the flag, so as to leave the roots free to take the cement in " dipping." Before the knots are dipped the roots are trimmed flat.

With rhythm we have dexterity : the knots accumulate. Whilst still dry they go upon the " hot-plate," and stand upon their roots to be thoroughly warmed to the middle. This is important as in their hot state the bristles take up the cement freely ; the oil, in conjunction with the resin, rises in sympathy with the natural oil in the hair and penetrates the knot right above the roots.

The " hot-plate " is a flat piece of iron with a gas ring under it. The cement pan is like the ordinary pitch pan ; save it has but one " striker."

In days gone by, before the hot plate was in common use, the knots were placed upon a board in front of a fire. And in the process of dipping the roots were rubbed upon a piece of iron, such as an old flat file ; this was the old way of distributing the cement.

As the man dips the knot he holds it straight up so



MODERN ENGLISH SASH-TOOL

as to get an even depth of cement all round. As more cement will cling to it than is required he must rub the knot against the " striker."

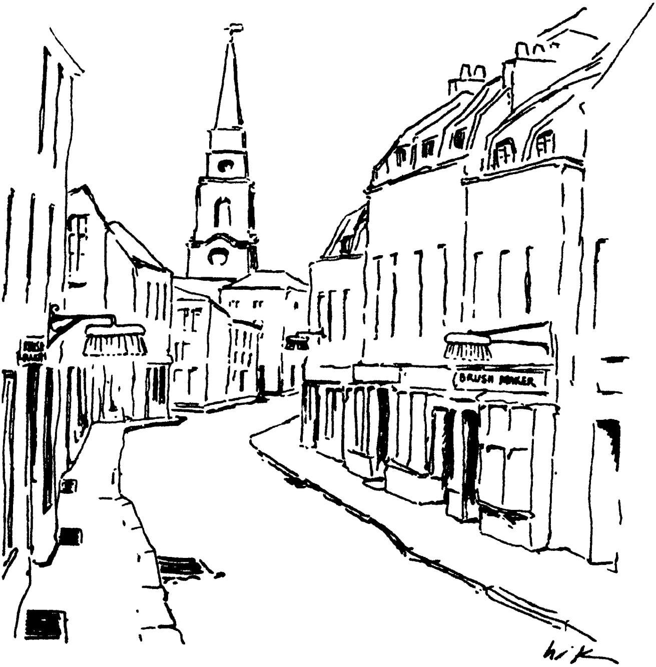
Presently a group of dipped knots may be seen upon the hot-plate ; standing upon their moist roots they send forth an aroma of resin and linseed oil. In a moment or two, when the heat has spread the cement high above the roots in the heart of the bristles, the knot will be set in the handle.

Now the man holding the handle in the left hand and the knot in the right, presses the hot thing into the " fork." He does this with such force as makes the cement ooze a little. Here he wets his fingers and puts the whole into shape like the sculptor handles a piece of clay, but quicker, for in a moment the thing is tied with hemp. Speed counts. The sash-tool must be made while the cement is warm and malleable. The hemp is a temporary tie to be cut away in the trimming process which precedes the binding.

The keen observer will see a small screw in the bench with head an inch high : insignificant but indispensable. In the cut of this the man lays the string and winds it once round. He is going to bind. The screw is to pull against so that the string shall be tight.

The binding begins about three-eights of an inch below the points of the fork. After the first two laps a few bristles are bent down over the string, and the thumb is pressed upon them. Now the string is taken off from the screw, and after a few more rounds a loop is formed and laid down upon the side of the brush. Over this loop, as over the odd bristles, the string is tightly bound. No schoolboy could wind his top with half the speed the man does this.

The moment the binding is finished the twine is cut from the rest and the new end is put through the eye



KENT STREET, LONDON, AND ST. GEORGE THE MARTYR'S CHURCH, 1877 of the loop. For a moment the screw comes into use again. Upon this the end of the string forming the loop is held, while the man pulls the brush with a force that draws the other end right under the binding.

Now that the thing has become a paint brush its general appearance must needs be considered. The brush has to be " ground." In this process the " flag " is softened, the hair washed, and the " turned " hairs are removed. When the brush is dry it is trimmed. It is important to know how to trim, which could be said " how not to trim ! "

Trimming a well-made brush is a delicate operation ; on the other hand, the bad workman will use the shears a good deal.

The more skilful the knot has been " layed " the more " flag " will be saved : the more velvet-like will be the top. In a word, whilst the inefficient in the end flies to the shears, the genius will have made a dome-shaped knot at the beginning entirely with his fingers !

In a measure these comments apply also to the copper-wire bound paint brush, known as one-knot distemper. The method of binding, however, is different, for whilst the sash-tool is bound in the hand the " one-knot " is " tied on " in the vice.

This brush derives its name by association with certain whitewash brushes, made with a series of similar knots, and known as two-knot, three-knot, and four-knot distemper brushes. We are now dealing with the one-knot.

Here the cement should be more malleable than that for the " sash-tool," as instead of the knot being set in a " fork " it is divided at the root with a greased knife, and set astride the handle. For this reason the handle resembles a chisel, indeed, the broad end is called the " blade."

On either corner of the " blade " is a small shoulder. These may be shaped in the wood or otherwise supplied as additional bits of copper, tacked on.

The workman wears a hand leather around which the wire is passed. This is upon the right hand. The handle in the vice is fixed straight up. As soon as the wire is attached and the " knot " placed, the man begins to tie it on. The movement of his hand is in circles : the speed is rapid. He may not stop till the finish, but all the while the other hand is ready to save the knot from behaving badly. The actual " tying on " is the work of but a few moments. Strange to say, in paint brush making, high speed mostly goes with good craftsmanship. This is more than interesting : 'tis a side-light upon genius !

CHAPTER VIII

THE WHITEWASH BRUSH

To casual observers the making of a whitewash brush looks quite easy. Indeed, its simplicity may suggest to them that they might sit down and do it at once. Such pleasant conceit, however, only makes the craftsman smile.

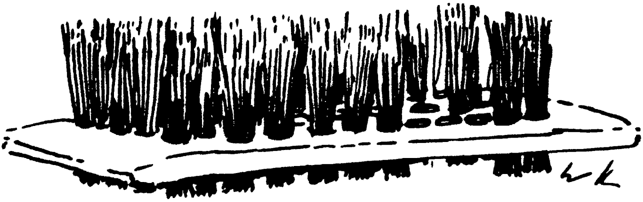
There would be pitfalls from the beginning. To pick up a handful of hair the right way the first time would be a miracle. It is almost as difficult to handle a bundle. In strange hands bristles have a way of slipping out of their string and spreading themselves upon the floor. The best bristles slip the soonest : a loose bundle of " Kamschatka " would baffle a doctor of science.

But with the brushmaker bristles seem to adapt themselves at every turn of his hand. In the process of dressing it is necessary to turn all the " bends " the same way. In the hands of the whitewash brush maker the bends, however slight, are turned towards the middle of the brush. His materials are simple. An elm handle, a narrow strip of " card " leather, a number of nails with flat heads and thin shanks, and, of course, Russian bristles.

Card leather is a disused thing from the cotton-spinning trade. To the brushmaker it is better than new, easier to manipulate, more compact in the brush.

The man's tools are as simple as his materials. They consist of a hammer, a flat iron, a " claw " with which to take out a crooked nail, a bradawl, a small comb, a sharp knife, and a knocking-up stick. He may have also a leather-cutting gauge or, instead, perhaps he will drive his knife into the bench, and with a few nails driven on either side as a guide, cut the leather just as well. The card leather to begin with may be 2 or 3 in. wide, and he must needs reduce it to narrow strips of ¾ in. and less, according to the size of the brush.

With all his leather cut to size and the bristles weighed and placed in separate portions upon his bench the man begins to " nail." " Nailed stock " is the trade name of the brush he has in hand, it is also called a " limer."



TOILET BRUSH IN BRITISH MUSEUM
(GREEK AND ROMAN SECTION)

These names may take us back a few centuries if we have a mind to look a moment.

In 1677, Moxon, the author of a quaint book, speaks of "*Brishes of three sorts, a Stock Brish, a Round Brish, and a Pencil. With these Brishes they wet old walls before they mend them . . . They finish the plastering by brishing it over with fair water.*"

To interpret this in the light of brushmaking, " Pencil " means paint brush ; the plasterer's pencil of the seventeenth century would resemble the English sash-tool of to-day ; the " Round Brish " would be a string bound distemper brush ; and the " Stock Brish," assuredly, the limer or " nailed stock brush " of our own time.

As all these brushes are still made by hand there can have been little change in their character; manual labour remains true to old traditions.

To see the craftsman working without the aid of any mechanical appliance, as in making a "nailed stock brush," is to be linked with the long past.

Among the various sizes of whitewash brushes made to-day the one used by the house painters is usually 8 in. wide. At the moment, we will say, the man is making this.

To be plain we will call the brush-handle the stock, the wide end of it the blade, and the knocking-up-stick the stick.

The stock is placed across the iron and the stick, the broad end upon the iron. The strip of leather chamfered at the end with the knife, is laid upon the blade of the stock about a sixteenth of an inch from the top, and is held there a moment with the left hand while, with the right, two tacks are driven in. These fasten the chamfered end to the stock.

The bristles of an 8 in. brush may be 6 in. long. Needless to say these have to be placed under the leather in perfect order before "nailing" begins, one bristle should not cross another; its "bend" must be in sympathy with the rest or the man will remove it.

Though in bristles of the best quality the natural bend is small it is soon found by the experienced hand. In truth here we have one of the subtle things that prove the craftsman. In manipulating the bend he will make a very desirable brush with a chisel-like top.

The man nails a portion of one side before any more bristles are added. The first layer is about a third of the total. When this is secured by a few nails he turns the brush over, fixes all the rest which includes the two ends, and completes the nailing.

The finishing touches are " singeing " and trimming. The latter concerns the " flag," the other the " roots." As the man uses the hot iron one is reminded of the aroma of a blacksmith's shop when the hot shoe touches the hoof.

CHAPTER IX

THE DRAWINGHAND

" DRAWING " is a process in which the knots are drawn into the holes, from the back of the brush, with wire. The uniform size of the knot is gauged by the thumb and finger as in panwork, the rest is different. But the two branches go well together.

" Pan " and " drawing " have always been closely associated. Many workmen are proficient in both. In the old days the apprentice would be taught drawing before he went to " pan," and although this is not now the rule, there are still a few shops in which the boy begins at the drawing bench. The change came with the introduction of women into the craft. This was done by slow degrees, the matter took many years to settle.

Perhaps there is not another trade in which tradition is more secure than in brushmaking.

In an old minute book of the London Society of Journeymen Brushmakers there is an entry referring to an employer, dated 8th May, 1829 : " *After long discussion it was proved beyond doubt that the principal part of his drawn work was given to women to draw. It was resolved that the men at his shop acquaint him that his giving out his work to women is very injurious to other masters.*"

On 24th April, 1833, another minute occurs : " *That all our members be withdrawn from each of the two shops where women are employed at drawing.*"

Ten years later, under date 26th April, 1843, a further minute suggests that the journeymen had met the masters half-way in the matter ; briefly it says : " *That* *the society does not allow the members' wives to draw any of the large hole work.*" We may gather from this that women were now permitted to do the branch of drawing known as " Fancy."

From that date, however, to a time that comes within the author's memory the number of women employed could not have been serious, as it was not until the trade boom that began in 1870 that women drawing hands were employed everywhere.

But though drawing is now mostly the work of women, men still do the boring and the finishing. The process is interesting from beginning to end.

Unlike the boring of a broom drawnwork is bored from a pattern. The pattern may be a thin piece of beech perforated with holes through which the brush is bored. If, however, the face of the brush happens to be round it is bored from a pattern made of pewter or other soft metal beaten to shape. In " pinhole " work this may be used like a stencil plate, in which case a dabber—a small linen bag filled with powdered chalk—is used. In a few seconds the face of the board will show a mass of small white dots. The boring is done upon this.

In most cases, however, the beech pattern is used, which is fixed with two thumb screws.

As the brush has to be bored twice over the first is called " entering." The second, called " boring through," is done without the pattern. Two different sized bits are used, the " bore-through " bit is the lesser. In other words, the holes at the back of the brush through which the wire enters are much smaller than those into which the bristles are drawn.

The word " bristles " is used here in the general sense, as the brush may also be made of one of the various fibres or of a union. The things in hand may be bristle clothes brushes, shoe brushes, or hair brushes, or they may be fibre scrubbing brushes.

In the Midlands a scrubbing brush is called a dairy brush, the maker would say simply "dairy." A medium sized "dairy" board may be 9½ × 2¾ × ⅝ in. preferably beech. The first boring is that of the "body." When this has been done the boards have to be "knifed" at the end for the "wing."

The knife, known as the "bench-knife" is attached to a block by means of a large hook and eye ; it has a handle an arm's length with a wood stock at the end for the hand to grasp.

The man holds the board upon the block with his left hand, whilst with his right he controls the big knife with his outstretched arm. Cutting off the corners sideways he proceeds with a steady sweep to round the end. It is all done with a free hand without any marking-out. The eye of the craftsman sees the slight inequality and another shaving is taken off, and the thing is perfect ! With perhaps three more strokes with the knife a crescent appears upon the face. This is the narrow plane upon which the wing is to be bored.

When the knifing is at an end the man returns to his lathe and bores the wings without any pattern at all. Then he changes the bit for a smaller one and proceeds to "bore through."

A number of different sized bits with their chucks occupy a small rack upon the wall. That they are very sharp may be seen from the clean-cut borings upon the floor. These accumulate rapidly and sparkle in their freshness. If a child had been there it would have caught some as they fell and found joy in their roundness and warmth.

In the old days the man would have been the drawing-hand and his boring the first stage of his work. But now a woman may take up the work in its bored state and do the drawing. In the morning she might be seen carrying a pile of boards from the lathe to her own bench, where she would begin her work.

In drawing "dairy" she would first "body" them, and then do the "mouthing" and finally the "wings." When the brush is complete the wing spreads out from one end like a fan, whilst the "mouth" at the other end is the portion that is cut, say, a ¼ in. higher than the "body." Half a century ago it was called "cow mouth" from its resemblance when looked at from the face of the brush.

The drawing bench is about the same height as a table. The front portion upon which the vice and the shears are fixed is usually 2 in. or more thick to ensure firmness.

The vice is attached to a board whose farther end is screwed down upon the bench. This arrangement brings the handle to the worker's right hand. As the brush in the vice is fixed at a right angle the worker may see both sides with a slight movement of the head. The wire enters from the right, the knot is drawn in from the left. It is all done so quickly that the casual observer must needs be baffled.

First the loop is made long and narrow and passed through the hole from the back. Caught on the other side by the left thumb and finger the wire opens like a lasso, and the "knot" is caught and doubled and drawn into the hole in the twinkle of an eye. And knot after knot appear so rapidly that they seem to come from nowhere. In a few seconds the row is complete. Then a gauge, a narrow strip of wood, is laid at the side and the bristles cut evenly down with a pair of shears. Then another row is drawn and the cutting-off repeated and so on to the end.

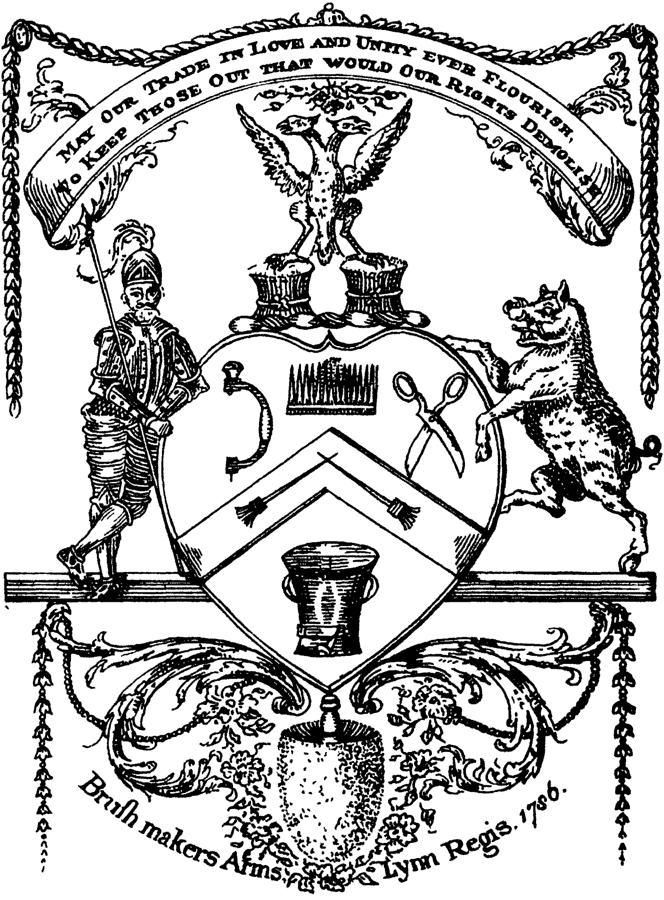
The shears are fixed upon the bench at the right of the worker. The top blade is rigid, the other—the active one—has a stout wooden handle attached to it. When not employed the blades remain wide open and the handle is up in the air. The lower blade has a gauge fixed upon it to correspond with the loose one held upon the brush by the thumb.

In the cutting-off process the woman stands up a moment. She holds the brush between the two gauges with the left hand, and with the right one shears off the ragged top with two or three cuts.

There are other details of relative importance. The worker's right hand is protected with a leather band, called a hand-leather. Around this the wire is wrapped twice, that being sufficient to pull with. The bulk is wound upon a board and lies upon the floor. Its course may be through a small leather loop attached to the bench, and then to the hand. Between the hand and the brush the wire should always be long enough to work with freedom. That is to say, the loop should be made and the knot drawn without any winding or unwinding around the hand leather. The badly trained drawinghand, of a certainty, will make unnecessary movements.

At the woman's left hand is a "drawing board," a smooth piece of wood about 10 × 6 in., lying flat upon the bench. The under edge of the near end is bevelled, whilst the farther end has a strip across, forming a little wall against which the bundle of bristles may stand. The rest of the board is kept "clean," as upon this the "roots" are "knocked up" in order to get them even before the knot is made.

The "knocking up" is done smartly with the left hand, it may be one knock, it may be two. The difference is one of those small things that may show the drawinghand has a personality.


May Our Trade in Love and Unity ever Flourish,
To Keep those Out that would Our Rights Demolish
Bruſh makers Arms. Lynn Regis. 1786.

LYNN BRUSHMAKERS' ARMS: DATED 1786

The well-trained drawinghand places the "knot" in the hole with the tips of the fingers, never with the side of a curved finger.

The bristles are placed in the loop in a nicely calculated position, so that the end to be cut off is mainly the "flag." The root end, as the better part of the bristle, should never be cut to waste. The sorts we have in mind at the moment are brushes of good quality, in a word, bristle brushes!

The appearance of the row before it is cut down may be like two different sorts of bristles side by side, the shorter having a solid mass of roots, the other a feathery unevenness. This would be the work of a craftsman or a well-taught drawinghand; others would have to be told to "draw the roots well down." Many of the best brushes are drawn in this way. Persons employed in making fibre scrubbing brushes and the like may not be skilled enough to handle costly bristles.

As the chief purpose of this book is to set forth brushmaking as a worthy craft, "drawing" must be considered in the same light as "pan." So we will look a moment how the craftsman, the one who has served an apprenticeship, does his work.

Although "drawing" is looked upon as women's work there is, fortunately, some of it that must be done by men. This is mainly "machine work," in other words brushes for technical use. Many of these have to be accurately "set out," skilfully "cut off," and securely made throughout. Among these may be included various circular brushes, some of which are made with one stock whilst others may be composed of a number of strips.

The "setting out" is often very intricate, as in certain brushes that have to be made spiral; and when these are composed of a number of pieces which shall be screwed together upon an iron base and form a large wheel, there must needs be the skilled workman with constructive mind to deal with it section by section.

To watch the man when he is boring some special brush of large dimensions is to see how he can improvise and meet apparent difficulties as a matter of course. A large stock, too heavy to hold in the hands, may be made to swing from the ceiling. The various angles it swings in will be regulated by a simple device of his own ; it may be a cord and a strip of wood with two holes in it. With this he will do wonderful tricks. Having already " marked out " the stock he guides it with skilled hands and experienced eyes. He is a drawinghand in the true sense, a man of tradition, hence he does the boring and all.

His method of " drawing " is equally interesting, because he has been properly trained. He works with apparent ease, hence his movements are rhythmic, He does not pull from the shoulder when the forearm is sufficient. In all manual work rhythm depends upon the wrist largely. In brushmaking the true craftsman works from the wrist intuitively.

As the skilled drawinghand presses the knot home with the tips of left finger and thumb he may touch the bench with his right thumb and draw the knot with a subtle movement of the wrist.

With thumb and bench as lever the hand becomes more sensitive. The outward movement of the wrist tightens the wire without a jerk, and the knot is firmly drawn. The sensitive hand with the wire feels all this instantly !

To follow the movements of the man who loves his work is to be more than interested ; his method is fascinating. With long practice the craftsman grows unconscious of his own way of doing things. So much the better. Since his living depends upon his work his sense of economy prevents any waste of energy and time. Hence there, is no affectation. No, he will do his work with the natural ease that is the essence of rhythm.

To study him closely is to find that his hands move in circles rather than straight lines. He does this naturally rather than with a purpose ; it is the way of all manual work in course of time.

Let the painter who would study the human figure for the sake of art see a man at work at his own job, and he will paint intelligently.

Sometimes, where long bristles are used, the portion cut off may be saved for other purposes, this is called " tops." Here the cutting off is done carefully with a view to saving as much " tops " as possible.

There is, however, a method in which the bristles are " drawn penetrating." It is the way hair brushes are made. The ends of the bristles are purposely made uneven, so that the brush may penetrate the hair to the scalp.

When we talk of hair brush making we touch upon a special branch of " drawing." The board is " faced," in other words, shaped to something like the finished state before it is " drawn." The " drawing " is done by women.

Before the bristles enter the brush they are cut to a given length and " shook up " so as to make them uneven. In their disorderly state upon the bench they look as rough as loose hay in a stable. A loose quantity of bristles may be seen in the drawinghand's leather apron. This hangs between the woman and the bench like a small hammock.

In comparison with ordinary drawing the movements of the fingers are slightly different. The open knot rests a second upon the sides of the left finger and thumb while with the right the bristles are adjusted so that the wire shall take the knot precisely midway between the "penetrative" ends. To use a paradox, the experienced hand will make the brush evenly uneven. The rest part is like ordinary drawing.

With skilled fingers "drawing" is a beautiful craft, the rhythmic movements of the hand and the wonderful tricks performed by the tips of the fingers are fascinating to look upon. The way the "knot" is handled is very old. The rhythm of the hand and magic of the finger tip are the same as at the beginning.

Mechanism may have room for progress, equipment goes on improving, but manual dexterity is implanted in the race as a gift.

When the brushes leave the drawinghand they are taken up by the "finisher." The finisher is a man skilled in shaping the back of the brush, he is responsible for the final touches that give perfection to its appearance. He works with sharp tools.

No man may use a spokeshave better than the brushmaker, even the wheelwrights, though they invented the tool, cannot beat him.

The spokeshave he uses is a wonderful instrument; wonderful in the sense that the man does so many things with it. He made it himself, having bought the blade alone. This is set into the stock with the precision of a hair's breadth, as is the flat piece of bone inlaid in front of the cutting edge.

He is as careful in selecting his blade as in fixing it into the handle. The man has his own idea as to what shape his spokeshave shall be, so he is happy in being able to make the thing himself. Hence the spokeshave may reveal the personality of the owner. In many ways, however, brushmakers are much alike; for one thing they are mostly poor men.

There is a French method of " drawing," known as " trepanned work." In recent years this has been taken up in England, Germany, and America.

In all ordinary drawn work the brush has a separate piece of wood glued upon the back to conceal and protect the wire. In trepanned work the brush is made entirely of one piece of wood. The holes, instead of being " bored through," are made a certain depth and connected at the bottom with a " long hole " which runs from one end of the brush to the other. The brush is drawn with thread. The " long hole " is the channel in which the thread is placed and made secure at one end before " drawing " begins.

In the process of " drawing " a small hook is used. This may be a sewing-needle with a piece filed out at the side of the eye. The hook, which is fixed in a small handle, is required to catch up the thread and draw it out of the hole in a loop. When the knot is placed in the loop it is drawn in from the end of the brush by means of the " long hole." The process is an excellent one in making ebony backed brushes, and it has long been the one and only way of making the ivory-backed brush.

CHAPTER X

THE BONE-BRUSH MAKER

THE handle of a tooth brush is called the stock, the man employed in shaping and drilling this and the woman who fills it with bristles, are known as bone-brush makers.

The stocks are made from the leg bones of the ox, the bristles are hog's. To make such uncanny things into dainty tooth brushes seems the work of a wizard.

To begin with, the bristles are washed and bleached and the bones cured, so that both become dry and sweet in the earliest stage.

The man at the circular saw will cut up each bone into five or six stocks. Subsequently, " profiling " and " fashioning " are done by machines that work on the principle of the spindle moulder on a small scale.

When the stocks assume their proper shape they are all put into the polishing tub with whiting and water. The rest is done by friction. The hole having been closed the barrel is set in motion. The thing goes round and round upon an axle for many hours.

Inside the revolving tub each bone is made smooth and perfect by contact with the rest. Hence the process is that of mutual refinement. Here the barrel becomes the symbol of a perfect order in which every unit is benefited, a matter that society would do well to contemplate.

Drilling the stock is like the process of boring described in an earlier chapter. The difference being only a matter of names. In a word, the brushmaker " bores with a bit," the bone-brushmaker " drills with a drill."

The character of these two expressions make it clear that the two trades had separate origins. It is also plain that, with us, the brushmaker is much older than the bone-brushmaker, as *boring* and *bit* are Anglo-Saxon words, whilst *drill* is Dutch.

The stock is drilled once over, that is to say there is no boring through with smaller bit as in other drawn-work. Instead of this lines are cut in the back. These form channels in which to lay the wire. The number of lines at the back of the tooth brush represents the number of rows of bristles. As the lines are narrower than the holes there is a shoulder up to which the knot is drawn.

Though the lines are made with circular saws the operation is called *graving*, which shows that once upon a time the work was done with the *graver*. In China the graver is used still.

As bone graving is a very old Chinese art the bone brush may have originated there. Be it so. No Oriental tooth brushes are so good as those made in England.

When the brush has been drawn the lines at the back are filled up with molten wax. But before this is done the wire is carefully laid down with a knife.

Another matter of importance is that in drawing tooth brushes it is highly necessary to fill the holes carefully but not tightly, otherwise the bone may split. This arises from the absorbent nature of the bristles and their expansion in water.

CHAPTER XI

HORSEHAIR

IN that part of brushmaking that concerns bristles—which is the main part—there have been few changes. The eighteenth century came in and went out without disturbing old traditions. The same spirit remained in the first quarter of the nineteenth century also. During all this time bristles were used in the pure state generally. In the same honest way horsehair was used as horsehair. There was no mixing.

In course of time when the hairs of the horse and of the hog first became associated in the same brush, the mixing was treated as an exceptional job and paid for at the rate of 6d. extra on the dozen pounds. In the same way 6d. extra was paid for whalebone, which was used solely for its stiffness.

In the matter of mixing it could be said that in those days whalebone was a necessity, horsehair a means of profit.

As touching upon profit, be it known, none of the cheap fibres had arrived. Until about 1840 the tropics had contributed nothing. The palms, with their hidden secrets, were as the tree of knowledge ; and the brushmaker was innocent to begin with. His fall, however, came in due course, as will be seen in the chapter dealing with the discovery of Mexican fibre.

Horsehair, on the other hand, was known at the beginning. Man and horse are associated in all antiquity. If time were challenged it could not be said whether man found the horse or the horse the man.

So it occurs that a bunch of horsehair, bound with string and called a brush, happened long before brush making became a craft.

With the brushmakers' use of horsehair is associated the art of hair drawing or dressing. The chief sorts that come into his hands are English, Australian, South American, Siberian, and Chinese. The first two reach the dresser in a very rough state, sometimes as combings. The others arrive in the more acceptable form of bundles. The most practical bundles are those that are tied at the " head."

The head of a bundle of " raw " hair is the end which is composed of all the roots, the " tail " is, of course, the other end. Raw hair means that which is undrawn.

The dressing of horsehair is altogether different from that of bristles ; indeed, it is a trade apart.

As a dressed article horsehair is known as " drafts." Under this name it comes to the brushmaker done up in long sticks, tied with white twine in a number of rings about 2 in. apart.

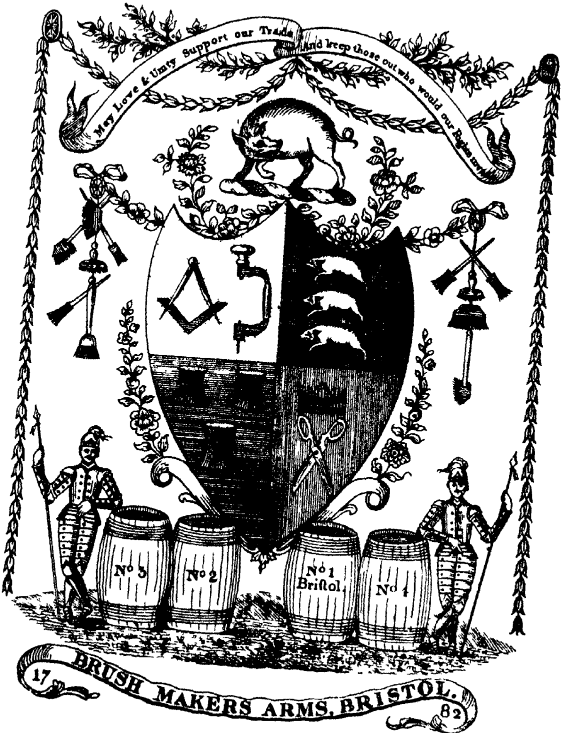
Bales of raw hair shipped at Buenos Aires weigh about 9 cwt. each. When these arrive in London they are sold by auction. The bidding is the price per pound ; the buyer, however, must take the whole bale.

The shipment may consist of three grades : long, medium, and short, all packed in separate bales. The long fetches the highest price always.

To go into the workshop of the dresser or hair-drawer is to hear terms known only to the trade, such as " hackling," " carding," and " bunching."

First of all the hair is " sorted " and " selected." Sorting is for colours, selecting for lengths and strengths.

When all these different qualities are made, and the hair has been tied in bundles, it is placed in tubs filled



May Love & Unity Support our Trade
And keep those out who would our Rights
Nº 3
Nº 2
Nº 1
Briſtol
Nº 4
17
BRUSH MAKERS ARMS, BRISTOL.
82

BRISTOL BRUSHMAKERS' ARMS: DATED 1782

with water and soda and left in soak for twenty-four hours. Then the hair is "wet hackled."

The hackle is a multiple comb that stands erect upon a bench. A dangerous looking thing. Imagine sixty or more long steel pins 8 in. high, set in a stock, and picture a man standing before it with a handful of hair which he whirls like a whip into the sharp points, and the same moment pulls it forth again.

After this drastic treatment the hair is washed in a tub of hot water with a strong dose of soda and soft soap, and then it is taken into the drying room to remain there twenty-four or thirty-six hours.

The drying room is steam-heated. The hair, however, is never allowed to touch the pipes, but rather hangs free upon a rail suspended from the ceiling.

When all is perfectly dry the hair is "dry hackled" and then placed in the "card." Here the "drawing" actually begins.

Drawing is the method by which the various lengths are taken out separately. The man does this with his thumb and a knife. Beginning with the longest all is drawn from out the "card."

The card is composed of smaller pins than the hackle and is much wider as a whole. And whilst the hackle is a single instrument, the card is double.

The hair is laid in the lower and the upper one is pressed down upon it, so the points of one pierce in between those of the other. In a word, the hair is held as between wide jaws lined with steel teeth. All this is arranged so that only a few hairs may be drawn at a time whilst the rest remain intact. This is called the single card, as in the second process two or three cards may be used. To distinguish the two methods the horsehair-drawers have a language of their own, as "first way" and "second way."

Between " first way " and " second way " the hair is " back hackled " and " knocked up " with the " bat." Back hackling enables the man to get all the roots level in making the lock.

Now the locks are matched according to their lengths and a number of the same length placed " second way " and drawn with greater accuracy than before.

When all the hair is drawn the man proceeds to " bunch," which is done with the aid of the hackle, the bat, a peg, and a reel of twine. Here the work is finished. Every stick of hair may be a shade different in length and all this has been done with the thumb and a knife, the latter made out of an old razor.

The Chinese method of drawing hair is quite primitive. They use neither hackle nor card. A quantity of hair, large enough to stand erect, is tied together with a rope and placed " head " down upon the floor. The Chinaman draws from the top. As the work proceeds the rope is tightened by means of a slip knot.

Probably our Anglo-Saxon forbears employed the same means.

CHAPTER XII

PIASSAVA

When piassava was first taken up by the brushmakers a few called it vegetable whalebone, but the name proved to be nonsense. Before the brushmaker knew that the palms of distant lands were full of fibres of use to him whalebone was almost his only diversion from the business of bristles.

On occasion he mixed whalebone with bristles to gain stiffness, but mostly he used the two things in the pure state. Of whalebone he made chimney-sweeping brushes, and also yard brooms for those who could afford a better thing than a besom.

The naturalists tell us that, in the true sense, whalebone is not bone at all ; they call it baleen. The brushmakers, however, stick to the old name.

Attached to the palate or nerves of the upper jaw of the whale the baleen begins as a plate and terminates with a fringe of fibres resembling coarse bristles.

Since the whale, *Mysticetus*, is without teeth he does not bite his food ; he only strains off the water. The whalebone is the strainer. Unlike the shark he does not attack large fish and tear them in pieces, but waits for a shoal of little things, as shell-fish and other mites found near the surface. These swim into his huge mouth as though it was their business, and when his mouth is full he strains the water out through the meshes of the whalebone and retains the rest. In the end this is swallowed in small quantities, passing as down a narrow tube.

As a useful article of commerce the whalebone

" plate " may be easily cut into fibres of various grades.

Before 1840 the bristles of the hog and the hairs of a few other animals and whalebone were the only materials that mattered in the trade ; native broom-weeds were left to the outsiders. The gipsies, unrecognized as craftsmen, made besoms and the like of various shrubs ; it was the business also of poor Irishmen and their families.

The gipsies and the Irish were sometimes called " broom binders " to distinguish them from the brushmaker craftsmen. The two trades went on apart always. There was a marked difference not to be lost sight of. The brushmaker had been taught by his master ; the besom-maker, servile to no man, picked his trade up. Brushmaking was a true craft ; besom-making a common habit. The one commanded respect ; the other aroused suspicion. The brushmaker was a citizen ; the besom-maker a nomad with a business in his hands.

So the brushmaker, looking to the dignity of his craft, did not descend, without dire need, to the business of the weed broom. Brushes made of bristles were not to be associated with the things made of the undergrowth found by the roadside. Bristles were articles of commerce ; ling was to be had for the getting. In a word, brushmaking was a privilege ; besom-making a liberty.

The gipsies and the Irish hawkers made other brushes besides besoms. They sometimes bought bored stocks of the brushmakers and set these with anything almost, from waste pig hair to the twigs of a birch.

In course of time the brushmakers refused to " bore " for the hawkers. A minute upon this may be found in the old books of the London Society of Journeymen Brushmakers. The year is 1833. The entry runs :

" Men order'd not to bore common work for the hawkers and if discharg'd through the same to make claim upon the trade." So the hawkers had to go back to their bit and brace whilst the brushmaker bored with a treadle lathe. It was a few years later than this that piassava was discovered.

As the stuff was to be had at a few shillings per hundredweight the hawkers turned it to account at once, while the brushmakers hesitated or moved in the matter with caution.

Until now the brushmaker had not been called upon to deal with vegetable fibres. In the year 1840 none of the materials named below were known to him—

Bahia piassava.
Monkey bass.
Mexican fibre.
Kitool.
African piassava.
Madagascar fibre.
Bassine.

The discovery of Bahia piassava, or bass, about that time, gave many an outsider a start as " brushmaker." Under the trade name many began to make bass brooms only. The brushmakers must needs bestir themselves and adopt the bass broom as a branch of the trade. So what at first was but the business of the gipsies and the hawkers became an important part of the craft.

From what has been said just now not many of the fibres now in use date back beyond one's grandfather. As an old brushmaker the author's father remembered the first appearance of many brush materials, notably piassava.

Doubtless his experiences were, more or less, like those of other brushmakers at the time. Many might have told the same story. Here is his with all its domestic colour and primitive simplicity.

It was in 1843 or '44 in the small Midland town of Loughborough that a man called to see a brushmaker with something new. The man was a stranger; the material he had to sell was piassava. He had already sold some in the North, and those who bought "made money": so the man said. The brushmaker was the master to whom the author's father was apprenticed. As the master was in a small way the apprentice worked with him and saw and heard all things that belonged to the business. So the boy saw the stranger and heard what he said.

The piassava was in its rough state: the sample the man brought was stuffed into his carpet bag; he said the bulk was in Liverpool. But he had to talk a good deal to persuade the little master to take up the new thing. The stuff was a mystery. It was called bass because it had no name in particular. The name has stuck to it to this day, and yard brushes, which are made of it, perpetuate the absence of logic as bass brooms. And strange as the fates would have it, the brushmaker to whom the stuff was now offered was a Mr. Bass. We have said the stuff was a mystery, but it was more than that. To the little master, who had not seen it before, its name looked like a plot!

As the stranger seemed not to know its real name, how came he by it? And what was the reason he offered it at only a few pounds per ton, or would take a few shillings for an odd hundredweight? In those days people did not allow a mystery like this to pass without comment.

A few brushmakers talked among themselves. The stuff was all right. They learned before long that the man had sold all he had, which may have been many tons. They said he must have got the stuff for an " old song." Some said he begged it, others that he had been paid to take it away.

What was said as rumour was mixed with certain facts. The facts were these.

It happened that this piassava had come from Brazil as dunnage, possibly as packing between cases of sugar, and was lying at the wharf as a thing of no further use. As refuse it had accumulated and become a nuisance. So the wharf authorities told the shippers who brought it to clear it away at once. As nobody seemed to want it the shippers might be put to some trouble and expense.

Here was a chance for a man with imagination. It happened there was such a person. The man that cleared this " rubbish " away was surely a genuis. And who would say that, having provided the brushmakers with their first lot of piassava, he did not deserve the profit he got ?

Though the brushmakers in those days were mostly in a small way they were practical men ; many would be experimenting in this matter at the time. But we will return to the little brushmaker in Loughborough and see what he did with his first lot of bass.

As the stuff was in a tousellled state it required thought and skill to deal with it. The master and his apprentice applied their genius. The bass had to be cut in certain lengths with a sharp tool, and straightened by means of steam. This brought the bench knife into use and also the kitchen copper. The brushmaker's knife is attached to a block exactly like the clog-maker's ; it has a long iron handle with a crutch at the end for the hand to grip.

As the knife seemed of little use against so tough a material they went to a neighbour, a butcher, and borrowed his cleaver. The butcher, good man, came himself and tried his hand. Whilst the two held a portion of the bass upon a block he struck with all his might and cut the stuff in the right way.

But the author does not wish to suggest that the master or even the apprentice could not have cut it with the same instrument as well. Doubtless it was due to the butcher's aggressiveness that he triumphed at the moment. Human nature was the same then as now ; a man must make a hit some time.

In due course, as was done with certain other materials, the bass was set with pitch into a stock. It became a bass broom !

In the economical course of things the brushmakers, who were quite human, asked for more, and merchants came to their aid and began to import piassava in bundles as an article of commerce. What had once been looked upon as rubbish was now a product of importance.

Gathered by the natives in Brazilian forests piassava is the fibre in the leaf stalk and trunk of the palm *Attalea funifera*. The collectors tear off the leaf-beard and break the husk of the stem, and the fibres fall asunder. The native knows how to cut notches for his feet and climb the palm and hack out the fibrous stalks.

With care given by the exporters to the needs of the brushmaker piassava soon came to hand in straight and sound condition ; the general appearance was very like it is now. These remarks refer to piassava in the rough state as imported ; the dressing is done in the countries of destination.

Dressed piassava is now sold as a manufactured thing, the brushmaker buys it of the bass dressers. As a specialized detail in brushmaking bass dressing is now a trade apart. The same change has taken place in other materials, including horsehair and a number of various fibres.

With the notable exception of bristles, the art and the mysteries of which he keeps strictly to himself, the brushmaker buys his materials in their dressed or drafted state, all ready for use.

In the old days the brushmaker had to handle all things in their raw state, struggle with them as best he could. Hence his vocation was a mystery to the last degree ; he produced a brush out of nothing. The author may be forgiven his pride in belonging to such a race of men.

The production of things out of nothing is an art known to the gipsies ; they made besoms and brushes in this way. Their intuition was shared by the old-time brushmaker, but he lacked their wisdom, for whilst he with great pride paid with silver and gold for his materials, they gathered theirs as they went on.

And the folk would buy a broom of the gipsy woman and receive her blessing, which was a generous one, as it included the well-being of their cow, their poultry, and their pig.

Piassava has further interest. In course of time, about the year 1885, a new sort came to hand from another part of the world. Shipped at a port in West Africa it became known as African piassava, and to the brushmakers as simply " African," as the other is " Bahia."

Like Bahia piassava, " African " is got out of the leaf-stalks of a palm. The leaves are prised off and the leaf-pulp torn away, and the rest is laid in water and soaked until the fibre may be separated with ease. All this is done by negroes, men, women and children. They make their huts by the river, and use the river bed for pulping the husk and the sunny bank for drying the fibre.

Viewing the place from a distance a stranger might imagine the ground was covered with rich red carpets, as such is the effect of the wet fibre as it sparkles in the tropical sun.

The negroes occupy their time as they please and are paid by results. The mode of payment is in goods or with coupons. Sometimes, however, these black folk grow tired of the white man's methods and refuse to go on with the work. Their oracle speaks to them in the moaning of the wind, or in the thunder, and they listen and obey. So they may remain idle for days and weeks; in other words, live like their ancestors did, in ages past, before the white man came. Their oracle spoke to them once when there were big demands for piassava which proves that the oracle is not in sympathy with the trend of civilization! It was a few years after "African" had first become known. Many tribes had heard the voice in the thunder and had left their work, vowing they would never more return. In that year African piassava rose to three times the normal price. So the oracle on that notable occasion must have cost the users of bass brooms a good many thousand pounds.

In course of time the natives, with new inducements from the settlers, became less romantic in their ways; more resigned to their fate as dependent people.

Familiar with the circumstances of the first arrival of this fibre old brushmakers still think of "African" as the new sort. The old piassava had had a successful run for forty years when the new sort came. But the time was right for the new thing, because "Bahia" had fallen in quality and stiffness. In collecting it by ruthless methods the natives of Brazil had destroyed a vast number of trees, and the farther forests were almost beyond the means of transport. So the brushmakers were not only paying high prices for a scarce article but a poor one also.

The author remembers how difficult the situation was just before " African " first arrived. Piassava had become an indispensable thing. The bass broom could not be done without. Though our grandfathers could put up with the besom we could not. So it is, where the new article affords more comfort than the old, a new need will grow. The new thing may be a luxury to begin with, but directed by the dealer, luxuries become necessities in the end. If the world but knew the secret we would live by one-half of what we now consume.

There is a difference between the two sorts of piassava in several respects. " African " is the stiffer, coarser fibre ; and therefore of use in making scavenging brushes and in rotary street-sweeping machines. Indeed, leaving the easier work to " Bahia," " African " will face anything from the snow on the pavement to the cobbles in the coal yard. But stout as the fibre is it does not remain straight in all circumstances like " Bahia." In other words, " Bahia " springs back into position whilst " African " betrays the way it has been pushed. For this reason " Bahia " is used by the sweeps ; being more elastic it adapts itself to the quaint turnings in old chimneys. Though the finer fibre " Bahia " is the more compact, lies closer in the bundle and weighs heavier than " African."

To those who remember " Bahia " at its best " African " is a poor substitute. If the Brazilians could again supply the old quality, as in the days when it was gathered in the matured condition, the brushmakers would rejoice.

The various sorts of African piassava are known to the trade as " Grand Bassa," " Monrovia," " Cape Palma," " Sherbro," " Old Calabar," " Congo," and " Gaboon." The port of arrival is Liverpool mostly, and Manchester is the chief centre for dressing.

The method of dressing is the same in principle as that of the little brushmakers of long ago; but, of course, the appliances have changed.

About the time " Bahia " was discovered another Brazilian fibre, known as " Para," came to light, *Leopoldinia piassaba.* The brushmakers call it monkey bass; a name that suggests that the small agile creature may find refuge in the palm.

Monkey bass has good properties of its own. Whilst " Bahia " is essentially the bass for the panhand " monkey " is used mostly in " drawnwork." " Drawing," it should be remembered, is the process in which the fibre is doubled as it enters the holes in the brush. As a tough fibre monkey-bass may be bent in this way without breaking, whereas " Bahia " must be " selected fine " to endure this; and " African," with its stubbornness, left altogether to the panhand.

In colour " monkey " is reddish brown; " Bahia " simply brown: both are pleasant to look upon. But the colour of dry " African " is almost annoying; hence it must needs be put into the dye tub.

CHAPTER XIII

THE ROMANCE OF MEXICAN FIBRE

THE first appearance in Europe of Mexican fibre was in 1852 or thereabout. Small quantities were brought to Liverpool by sailors from Tampico, where they got it to stuff their mattresses with. Two of these seamen took a portion to a brushmaker and got some brushes made of it. These turned out so useful and cheap that the brushmaker went and bought the fibre of the other men.

They were the crew of a sailing ship ; they had adopted the method of restuffing their mattresses at both ports, here with straw and there with fibre. As they cast the old straw upon a dust heap in Tampico so they threw away their fibre in Liverpool. They had done this many times and braved the wide Atlantic over and over again ere they thought of a use for the fibre.

As the brushmaker was in a small way there was not much stir made in the matter at the time. But later, when someone else laid claim to the discovery and proceeded to patent it, the little man asserted himself. When he had told his story the situation was saved, not only for himself but all the rest of the brushmakers.

The publicity of the matter brought Mexican fibre into the hands of the merchants, and in a few years the product became a very important brush fibre, and it remains so.

In Mexico, where it grows, it is called istle ; it is got from the plant, *Agave Americana.* Sometimes it is called Tampico ; but to British brushmakers it is known as Mexican fibre, as it was to the seamen who brought it to light; and to their friend, the brushmaker, who turned it to good account.

Among the several sorts of "Mexican" handled by the merchants are "Jaumave," "Tula," and "Saltillo." The first two are best known in the British market. "Jaumave," so named after Plain de Jaumave, the marsh in which it grows, is noted for its length; sometimes this fibre reaches to 30 in. But though "Tula" is the shorter fibre it is the stiffer, and so a good material for the scrubbing brush.

Probably the reason the istle is called a plant and not a tree is in its small height. Though it sweeps outward on every side with big leaves it grows little taller than a man. That climbing is not necessary is a happy circumstance for the bare-footed natives, as the leaves are prickly. For this reason a lasso, or loop fixed to a stock, is used in pulling the leaves off the tree.

The fibre is embodied in the leaf, as the nerve or life of it. The flesh, or leaf-pulp, is scraped away with a knife with a rough edge. The man that does this would count himself fortunate if he got a pound of fibre out of half a dozen leaves.

The fibre is laid in the sun to be bleached. No time is lost in this; as the sooner the bleaching begins the brighter, the creamier the fibre in the end. So the collector is also the bleacher.

For the purpose of exportation the fibre is made into bales by means of a press. In this state it is received by the dressers in various countries as "rough" fibre to be "drafted." That is to say, prepared for the brushmaker.

Mexican fibre may be said to have changed brushmaking altogether. Its effect upon the craft was different from that of piassava. For, whilst piassava gave the brushmaker a new separate interest, Mexican fibre changed the character of everything he had. The two materials were received in different ways. A use had to be found for piassava, which meant a new sort of broom had to be made of it. Whereas " Mexican" was taken up as a substitute for bristles. " Piassava " was not to be mistaken; but " Mexican " could be clothed with mystery. To take up piassava the brushmakers had to be pressed, whilst " Mexican " took the trade at sight. The brushmakers saw many points in its favour. It was easily bleached. It could be dyed any colour. It could be made to look like bristles. The brushmakers had honest intentions to begin with, but they grew more and more interested !

The matter of technical deception is alluring. To some it is intoxicating !

Bristles were dear and scarce, which meant they would grow dearer still. Mexican fibre was plentiful and cheap ; its arrival looked like the hand of Providence ! So the brushmakers used the fibre freely without first learning its limitations ; in other words, they experimented upon the public and pocketed the profit. To say the least, it was a regrettable case of an honest craft becoming suddenly demoralized. All the brushmakers, without exception, caught the contagion ; but most were unaware of the enormity of what they did. Before the arrival of " Mexican " the public could be sure of a hair broom being *all* hair, but now and henceforth there must be the inevitable question : *Is it all bristles ?*

Out of all this arose a new order in which quality has become the hall-mark of certain brushmakers ; that is to say, the name of the maker counts because there are possibilities of deception in the goods. To put the matter in a nutshell, a pure bristle broom may still be had of the brushmaker with a *name*.

In course of time the brushmakers found the limitations of Mexican fibre. In other words, they discovered its possibilities and began to make scrubbing brushes of it ; the right and proper thing to do. As the fibre wears well in water and remains wholesome it has become the standard material of most brushes that are used in the wet state.

Fibre-drafting is a trade by itself like bass dressing. But sometimes the same firm will do both. But, as far as the workmen are concerned, they are different occupations ; two distinct trades.

CHAPTER XIV

KITOOL AND OTHER FIBRES

Some of the botanists say that the order of the palm comprises 600 species; others make it a thousand. The difference, however, does not matter here. The smaller number would seem enough to set the brushmaker dreaming of new fibres yet to come. Every palm almost has fibre in the leaf, or in the stem, or matted around the trunk. Yet the few fibres known to the brushmaker may be counted almost with the fingers of one hand, and the discovery of every one is mainly due to the genius of some outsider. The whole matter suggests that the brushmaker is not deeply interested in vegetable substitutes for the hairs of animals. This is true, despite the fact that he was once dazzled with the possibilities of Mexican fibre.

What is meant by the term brushmaker, for the purpose of this book, is the craftsman whose training enables him to hand down the best traditions of his trade; he is more than a maker of bass brooms or producer of fibre scrubs. He did not belong originally to the binders of besoms.

In this light the brushmaker's apathy at the first arrival of " Kitool," about the middle of the nineteenth century, may be understood.

Kitool is the Cingalese name for the Indian palm *Caryota urens*. The brushmaker calls the fibre by the Cingalese name. That it had poor reception is quite plain, as sixteen tons were sold at a price that did not pay the freight from Ceylon to London. The speculative buyer thought it might do for the gardeners to " straw " their plants with, but the gardeners themselves were not taken with it. In despair the man thought of burning it, as the rent for storing so large a quantity was running on apace.

To burn sixteen tons of stuff without annoying his neighbours was no small problem. Besides it would look like the act of a madman. For such a blaze as this the man would have to give a reason, otherwise some neighbour would be sure to invent one. The imagination of others has to be considered. Knowing all this the poor man thought the 5th November would be a good time for the conflagration. Nobody then would be annoyed ; moreover, many might help him to do it.

But in the meantime matters changed ; the ghost of Guy Fawkes suddenly disappeared, and fortune smiled.

It was all due to an accident ; a small matter that might have escaped the notice of any save this observant man. It happened that a few fibres of Kitool came in contact with some oil. In that moment the fibre turned from dull brown to luminous black ; and, retaining the oil in a remarkable way, it became bristle-like.

Straightway the man went and saw a friend, a drawer of horsehair, and told him what had happened. The two arranged matters, and the sixteen tons of Kitool were turned to account. Samples were shown to the brushmakers, and the bulk was sold at about a shilling a pound.

In a few years oil-dyed Kitool became known as the chief of all substitutes for stiff bristles.

Another Indian product of use to the brushmaker is bassine. This is got from the Palmyra palm, *Borassus flabelliformis*. It is known to the natives as the wine tree. They call the wine noonypoo ; Europeans know it as toddy. Bassine, which is procured from the leaves, became known to brushmakers about the same time as African piassava. The two products, arriving from two different continents, soon became serious substitutes for the two long-known Brazilian piassavas, " Bahia " and " monkey bass."

The commercial relation of bassine and monkey bass is almost like that of " Bahia " and " African," given in an earlier chapter. But in point of utility the case is different. For whilst " African " is a poor substitute for " Bahia," bassine is a good one for monkey bass. Happily, with all its good qualities, bassine is plentiful ; the Palmyra palm in India happens to be the most common of all its tribe.

Bassine and Mexican fibre make an excellent union for scrubbing brushes and the like, as in former days monkey bass and " Mexican " were.

In the list of tropical substitutes for bristles cocoa fibre may be the oldest of all. Even so, it could be but a generation in advance of the rest of the palm fibres.

In the forepart of the eighteenth century the brushmaker was content with his limited choice of animal hairs, adding whalebone, on occasion, as a compliment ; whilst the besom-makers and their class were employed with the native rush, reed, and shrub.

In those days the same limitations may have applied to the whole of Europe ; allowing, of course, for certain variations in native products, as " whisk " in France, and another material produced in Italy, called also " whisk."

The cocoa-nut palm, *Cocos nucifera*, native of India, grows also in the West Indies. The trees must needs love water as the tallest are found by the sea or around a lake, some reaching a 100 ft. high.

The fibre is extracted from the husk of the nut. In England cocoa brooms, useful and cheap, are made in large quantities. The fibre appearing in its natural colour is surely an honest thing ; and wherever one goes bundles of dazzling cocoa brooms may be seen by the doors of the dealers. Almost every shopman shows them. Ironmonger and druggist, grocer and draper are all under the spell of the red flame of this stuff !

In India the natives make brushes of the husk itself cut up in pieces. Fifty years ago cocoa-husk scrubbing brushes were common in England ; they were to be had at 2d. each ; their lasting properties were as good as the price was small.

A comparatively new material is Madagascar fibre ; from the island of that name S. E. of Africa. Since the place is a French colony all the fibre goes preferably to France. At the same time English brushmakers are kept well supplied by the merchants of this friendly nation.

" Madagascar " is a palm fibre of considerable length, many times longer than " cocoa " and slightly darker in colour, approaching chestnut.

The softness of " Madagascar " gives it a good place among brush materials. Unlike Mexican fibre it may be made into useful brooms.

Now we will leave all the various products of the palms and take up the matter of " whisk." There are three kinds known to brushmakers, each bearing the name of the country of origin, as French, Mexican, Italian. The first two belong to the order of fibrous roots, the other is a straw.

" Italian whisk " is known in America as millet, in Europe as sorghum or sorgo-straw. The various names may have shades of meaning for slightly different straws, but all are grouped by the brushmaker under the head of Italian whisk.

But no relationship exists between this "Italian" family of straws and the whisks of France and Mexico. For whilst the first grows as waving corn the other two are the roots of grass. As the one thrives in the fragrant sunshine the others are nurtured by the swamp. The difference is as between night and day, yet whisk is the trade name of all. The brushmakers of a century ago were more definite and more simple in this matter; they named the two sorts, respectively, broom-corn and broom-root.

To be precise, French and Mexican whisk are the roots of a kind of quitch grass. Quitch, an enemy of the gardener, would take possession of all his plot if he did not expel him. So the gardener is careful to uproot him with thoroughness, leaving none of the long, rambling, wiry, roots in the soil.

In the countries where a similar grass grows as a commercial product it is said to be *cultivated*. Perhaps cultivation means letting it grow. As a matter of fact the grass is allowed the liberty to do as it likes for two or three successive seasons. The last stage is decomposition of the skin on the roots, which is brought about by the water in which it lies.

In the end the bare fibre is spread upon the ground to bleach in the sun. In its nature it absorbs the light so freely as to become bright and golden like the sun itself.

Whisk is an old name for a brush that may be used smartly. The fibre under our notice must have been given that name for its smartness in cleaning the carpet or in removing the dust from a man's coat, and imparting freshness also to that of his horse. But these limitations belong to the British Isles.

Sorghum has a wide and varied use in other countries. In very truth almost all the besoms in France and Spain and Italy are made of sorghum, as may be seen in the streets wherever one goes. Of a morning, whether in Paris or in Rome or in Madrid, the man or the maid goes forth with golden broom to sweep the dust before the door.

CHAPTER XV

MACHINE-MADE BRUSHES

THE trend of this book shows how largely brushmaking is a craft rather than an industry; how the work requires personal attention rather than mechanical agency.

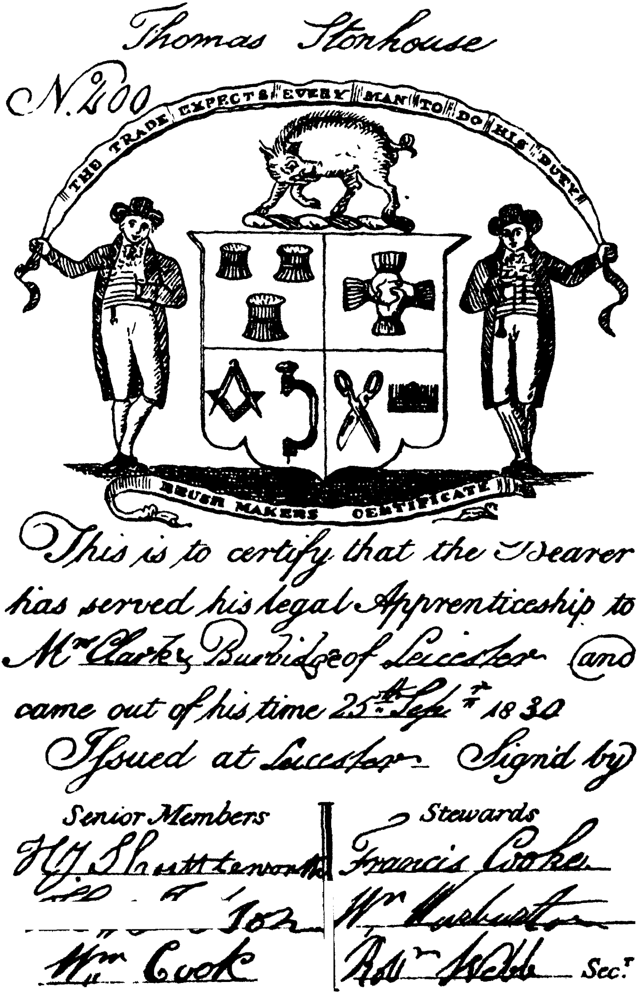
Though certain machines are now well-established, and brushes known as "machine-made scrubs" have become a necessity, all the best brushes are still made by hand.

Whether in the factory of the large employer or in the small workshop in the back street, the method is the same. As of old the hair broom is made at the pitch-pan, and the skilled fingers of the drawinghand are needed where the best bristles are used; and the painting-brush maker still binds the best sash-tool and "ties on" the "one-knot."

Almost all the brushmaking machines are supplementary rather than fundamental. Take the case of the machine that "sets" with the staple. The gain is that of mass production rather than efficiency; for no one who knew his business would think of using the machine for making a XXX hair brush.

To the craftsman costly bristles seem to cry aloud for the care of human hands; indeed, none less sympathetic than the panhand, or the paint brush maker, or the drawinghand, will do. And in like degree costly sable calls for human fingers, with their delicate touch, to make the hair pencil.

Be it so. Within their limitations machine-made brushes have come to stay. On the one hand, the



Thomas Stonhouse

N.° 200

THE TRADE EXPECTS EVERY MAN TO DO HIS DUTY

BRUSH MAKERS CERTIFICATE

This is to certify that the Bearer has served his legal Apprenticeship to Mr Clark & Burbidge of Leicester and came out of his time 25th Sept 1830 Issued at Leicester Signed by

Senior Members
H J Shuttleworth
Wm Cook

Stewards
Francis Cooke
Wm Warburton
Robt Webb Secy

BRUSHMAKER'S CERTIFICATE, 1830

associations of elegance and high-grade bristles do not necessarily enter the scullery ; on the other, the scrubbing of the floor and the scouring of the pans are matters of such importance as to justify the mass production of suitable brushes, and machinery is doing this.

Among the various machines employed in making brushes the one that produces the scrubbing brush is by far the most important. It may be fifty years or more since this was first used, and though many improvements have been made with a view to efficiency, the principle of securing the " knots " with wire staples remains.

The full intricacy of the machines is beyond the purpose of this book ; the part that matters here is the way the " knots " are set.

Generally the " knot " is doubled over a piece of wire which the machine cuts off and bends into a small staple. " Knot " and staple linked together are forced through a tube of the same capacity as the hole in the brush. The tube acts also as a pointer to find the position of each hole.

In the process, the brush, fixed in a slide manipulated by the hand, passes in front of the tube, and " knot " by " knot " is discharged from it and " set " in quick succession. As the " knot " is forced to the bottom of the hole, and the staple is pressed down, the points enter the wood crossways.

In another machine the staple, which is stamped out of sheet steel, has minute teeth upon the outer edges that bite into both sides of the hole.

Needless to say, there are many kinds of machines employed, and not a few quite different in appearance ; but, all told, the principle of setting the knot with the staple is general.

CHAPTER XVI

BRUSHMAKERS' SOCIETIES

A SOCIETY of plain men who, as journeymen brushmakers, manage their affairs exclusively among themselves, must needs be interesting. Their short way of doing things, their pointed rules, their direct speech, their zeal, suggests character worth while to study. To allow these plain men the charm of quaintness is to go back a century and see how they did things then. Happily, sometimes they had their articles of association printed, and luckily one copy, at least, survives. Here are a few paragraphs and the title—

ARTICLES
OF
THE SOCIETY
OF
JOURNEYMEN BRUSHMAKERS
HELD AT THE
SIGN OF THE CRAVEN HEAD
DRURY LANE
LONDON.

INSTITUTED IN THE YEAR 1806.

That this society shall meet the last Wednesday in every month, from the hours of eight to eleven in the evening, at the Craven Head, Drury Lane ; and that no person shall be admitted a member who is not well affected to his present Majesty and the Protestant Succession, and in good health and of respectable character.

Any Brushmaker approved of by the society may be admitted a member, if he applies within three months after the expiration of his apprenticeship, on paying 1s. 3d. : if he do not apply till after three months, he

> is to be admitted, if approved of, on paying a sum of money at the discretion of the society.
>
> That the list of the members shall be called over at eight o'clock . . . .
>
> That on every meeting night each member shall receive a pot-ticket at eight o'clock, a pint at ten, and no more.
>
> That a secretary shall be chosen by the society, to keep their accounts, who shall attend every meeting night at eight o'clock, or pay a fine of 1s. ; and if he be absent the whole of the evening, without appointing a deputy, he shall be fined 2s. 6d. The secretary to be allowed 1£ 1s. per quarter, and for extra attendance 1s. 6d. per night.
>
> That a box, with three different locks and keys, shall be provided : each steward to keep a key, and the landlord of the meeting house the other.
>
> That every member shall pay 2s. 6d. per quarter till the stock amounts to 30£ ; and after it amounts to that sum, then 2s. per quarter. That when the stock of this society shall amount to 80£, four members of this society shall be appointed to purchase 50£ stock in the 5 per cents ; and every succeeding 50£ to have different stockholders : any one of whom refusing to transfer, when ordered by the society, shall pay a fine of 20£, and be liable to be proceeded against in a legal way.

They were all skilled men ; every one knew several branches of the craft. No half-trained man was admitted to the society. Needless to say, it was the desire of every young brushmaker to become a member.

According to the rules the applicant shall be well taught as a craftsman and an honourable man. His private character was examined as thoroughly as his work. This was necessary, as the society made itself responsible for his conduct toward his employer. In particular the society made good to the master any loss incurred by the man, as in the case of work left unfinished. So that entrance was impossible for some, and at times difficult for others.

The applicant's letter must be written in his own hand. He must also send his indenture.

In some cases the indentures were not in order, in others the young man had not learnt his trade thoroughly. To throw light upon cases of this nature a circular was sent round to all the members. This contained a printed copy of all the letters of application.

The circular issued by the London brethren contained the number of their votes for and against each candidate. In due course the votes taken in the provinces were published in the next issue.

In looking at all these printed letters we get two pleasant impressions; one is that the writers felt there was great honour in being elected, the other that every letter showed the hand of an intelligent person. Here is a typical case—

> LONDON.
> 24th September, 1856.
>
> Gentlemen.—I have taken the earliest opportunity to endeavour to become a member of your honourable society, hoping you will be favourable to my admission. Should I be elected my attention shall be to fulfil the rules and to become an honourable member (here follows references to the character of the shop where he was employed). Gentlemen, the business I profess is pan and hairs; and should you think proper to make me a member of your society, by emancipation, I shall always endeavour by my conduct to support the rules and regulations connected with it.
>
> I am, gentlemen,
> Yours respectfully,
> JOHN TAYLOR.

Yet with all this technical exclusiveness the society had a lively sense of fairness towards mankind in general. Upon their arms they make it known to all men that they are—

"UNITED TO PROTECT: NOT COMBINED TO INJURE."

In the eighteenth century a number of societies in the provinces had arms of their own. Their mottoes were differently worded, but all showed the same trend of thought. That of Bristol, dated 1782, says—

"MAY LOVE AND UNITY SUPPORT OUR TRADE
AND KEEP THOSE OUT WHO WOULD OUR RIGHTS INVADE."

The Leeds motto is—

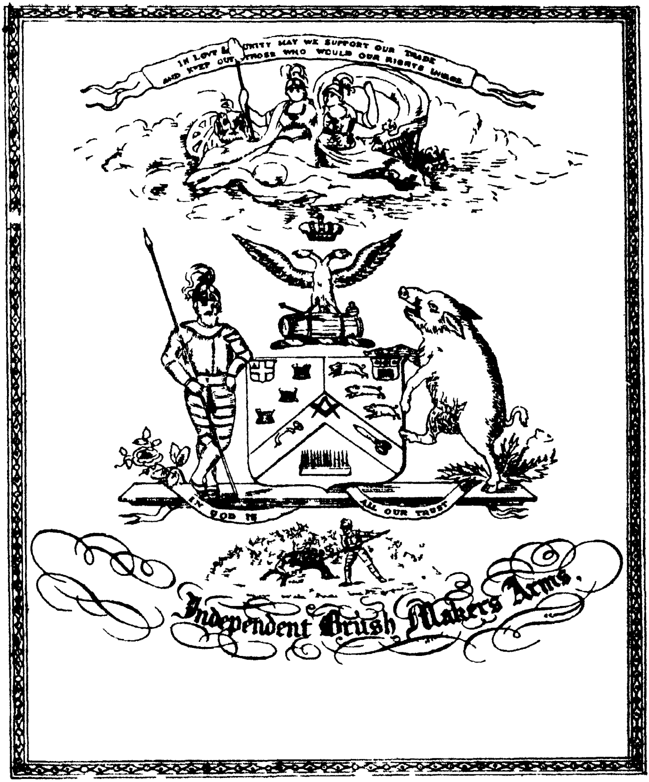
"SMALL THINGS IF MULTIPLY'D WILL FLOURISH AND INCREASE
WITH FRIENDSHIP, UNITY, CONCORD, LOVE AND PEACE."

The date is 1791. The arms of the Lynn society, dated 1786, has a motto imitative of Bristol, but more assertive—

"MAY OUR TRADE IN LOVE AND UNITY EVER FLOURISH
TO KEEP THOSE OUT THAT WOULD OUR RIGHTS DEMOLISH."

Another interest in these various arms are the details engraved upon the shields. Here the primitive tools of the craft have been drawn with equal care and wisdom.

Remote and simple and, withal, pleasantly familiar, these things must needs appeal to every member of the craft; for who could look upon the old pitch-pan with its charcoal stove without a sense of silent romance, picturing the four panhands who, long ago, sat around it at their work. Probably they would wear white


IN LOVE & UNITY MAY WE SUPPORT OUR TRADE
AND KEEP OUT THOSE WHO WOULD OUR RIGHTS INVADE
IN GOD IS ALL OUR TRUST
Independent Brush Makers Arms.

INDEPENDENT SOCIETY OF BRUSHMAKERS' ARMS smocks and paper caps. Assuredly they would bite pitch off their fingers and talk about *Reform*.

In those days political faith was so important as to be recorded in the minute book. On 27th April, 1831, the London brushmakers record with bold capitals; "THREE CHEERS GIVEN FOR REFORM AND KING WILLIAM."

On the 4th May following they met again at the club house and gave proof of their sincerity—

> Resolved That in order to shew our attachment to our Sovereign and our Unanimous opinion on the all Important Subject of reform we Immediately Commence a Voluntary Subscription in aid of the Funds of the Loyal and Patriotic Fund. And in order to make the Subscription as easy as Possible we Propose that an Equal Distribution of 1s. 6d. each be Immediately made from the Private Fund and that those Members who object to giving to the Fund shall receive their 1s. 6d. by sending their Names to the Secretary, on the night the voices are taken. Second that on a Calculation there are 260 Members belonging to the Fund we therefore Propose that 20 Pounds be taken out of the Fund and that those Members who are not eligible to receive from the Fund may send up their names for what Sum they Please which shall be advanced for them and repaid the Same way as a Petition. 3. That the voices be sent tomorrow Night and if Carried the President and Secretary take it to the Committee at the Crown and Anchor and Pay it in as the Voluntary Subscription of the London Society of Journeymen Brush Makers held at the Hope, Clare Market, as a Testimony of their attachment to the cause of Reform. Trusting it will be a Stimulus to their Brethren in the Country and other Trade Societies to do Likewise.

Another matter of interest belonging to these men is that in 1846 they opened a "bass factory." So it appears that in the nature of *co-operation* they were abreast with the "Rochdale Pioneers." They may not have been identified with the general movement and its political advocacy. Their minutes suggest they were not, as the word *co-operative* does not occur. And, as none of the numerous histories of *co-operation* mention these men, their independence appears quite clear.

When we consider how much has been written in books, magazines and newspapers upon the co-operative movement, we have to admit how wonderful these brushmakers were to have done what they did without the aid of this limelight of publicity. Indeed, how honest to have escaped history altogether !

To find these men and get glimpses of their character one has to go upon records made solely by themselves and for themselves. The bulk of these have little or no meaning, save for those who belong to the craft.

There was, however, one solitary attempt to record the dates of certain important events. This made two interesting pages in the annual returns of the United Society for the year 1892. The compiler, J. Huntington, was then secretary of the Bristol Division. He says—

> In 1734 the brush business of Bristol only contained masters and men to the number of nine. From that time to 1780 the workmen increased to fifty-eight. This increase being greater than the work the men gradually left Bristol to find pastures new in other towns. By reference to the Polling-books of 1781 we find that at an election thirteen brushmakers came from London to vote, one Exeter, one Plymouth, two Dorset, one Walsall, two Hereford, one Birmingham, and one Newington. Brushmakers must have been high in the social scale to become Burgesses of the city. We thus see how these men carried their trade to various parts of England. Those remaining in Bristol formed themselves into a society in the year 1782. Societies soon sprang up in other towns ; those in the Northern counties some time afterwards. In those early days, as now, no great

object could be obtained without the banding together of men for united action, for the benefit of those who follow after them. This was the great idea of the Bristol brushmakers. They have been the pioneers in some of our greatest struggles in politics. As a Society they were many years in front in the fight for reform for the benefit of their fellow men.

As the number of men increased in the various towns it was thought advisable to form one grand society. A circular was issued to this effect and the resolution carried ; and in 1810 all the societies were formed into one with Bristol as the head. But each society retained its independence so far as payments and benefits were concerned, with the result that in some towns higher contributions were paid than in others, and more relief granted.

Great dissatisfaction prevailed at this state of things ; but after considerable correspondence a good understanding was arrived at, and a new code of rules established, and London made the head society.

During the period from 1810 to 1825 another society of brushmakers was formed, known as the " Second " ; and in some respects this was opposed to the first. As a considerable amount of friction was caused on both sides a proposal was submitted from Sheffield for amalgamation. Of the 700 members who voted 381 were " for " and 332 " against." The resolution being carried the brushmakers once more became a " United Society."

Until that time the society was exclusively a Trade Society, giving no sick benefit. It was, however, thought by a large number that by an increased contribution a sick benefit could be given in addition to the ordinary Relief : and that such would be a great boon to those who were knocked up while on the road, beside those who fell sick in the towns. A proposition was carried in 1827 to establish a Sick Society, which was to have its own officers and membership upon payment of thirteen shillings per year : entrance being optional. This continued under the name of the Benevolent till the year 1874, when it was affiliated with the Trade society.

From 1782 to 1836 there was no fixed Pension Benefit,

UNITED SOCIETY OF BRUSHMAKERS' ARMS, 1840

> the members receiving a small sum per mile, and if they reached a Head society, so much for Sunday. And so it happened that the man who went round the trade in the shortest time was the best off. Some old members said that it cost them from four to five shillings per week above contributions to relieve those on the road. The fixed rate of pension benefit came into operation in 1837.

As a connected record this little history of the society must needs be of great value to the members. There is, however, a doubtful statement at the beginning, referring to the number of masters and men in Bristol in 1734. Should not Mr. Huntington's opening statement read: " In 1734 the brushmaking business in Bristol contained *Burgesses*, masters and men, to the number of nine"? The "second" society referred to by Mr. Huntington may have been the *Independent Brushmakers*, whose arms bore the added motto: " IN GOD IS ALL OUR TRUST."

It is very pleasant to find that the secretaries of the Brushmakers' Society from the beginning have been worthy men and true. This tradition is, assuredly, being upheld to-day in the charming personality of Mr. S. G. Porter and by the enthusiasm of his young friend, the present secretary, Mr. G. F. Mayes. Not less important is the gratitude of the members toward these men. Among brushmakers, be it said, this loyalty is not new. In very truth it has kept their trade society going nearly two centuries. On occasion this sense of brotherhood has found pleasant expressions, as the old minute books show. Here is an extract. It refers to an oil painting. The year is 1829.

> This portrait of Mr. Wm. Hunt, who for 8 years faithfully filled the office of Secretary of the London Society of Journeymen Brushmakers, was unanimously voted to him, at a general meeting of the society held

> 19th March, 1829, as a token of the high esteem the society entertains of the important service he has rendered them, and for his counsel and persevering endeavour to promote the welfare of the trade at large.

The portrait was painted by a Mr. Patten, who received ten guineas in payment.

Now without regard for the order of dates, but rather in the sense of appropriateness, as touching the innermost feelings of these men, we will read an old man's letter. The man was a retired secretary; his letter was addressed to one who had been a few years in office—Mr. Porter. The date is 5th June, 1899.

> Dear Sir.—I have not been able to look over my old books yet, but will do so this week; and, if any things I have can be useful to you, I will forward them.
>
> Your praise of me, to me, is very sweet. I often have wondered how old people have felt when their span of life was drawing to a close. I am old now, memory is failing, and other symptoms of age are upon me, but I am cheered by the knowledge that, wilfully, I never inflicted injury on any one.
>
> When you took up the work of the Society I believed in you. That belief is the same now, if possible stronger than ever. And I hope that you will be able to devote many more years to it as the greatest leader that I have known.
>
> Yours faithfully,
> ROBT. J. COLEGATE.

To do justice to the character of these men is to turn a moment from their brotherly love and look at them when, on occasion, they encounter anything in the nature of humbug. Without this the picture would not be complete. To get truth is to touch two sides of the same temperament.

Their old minute books conceal nothing. The words may be brief, but each case is laid bare. Whilst at one time they would set all their rules aside and allow themselves to be guided solely by their sense of humanity, at another time they would write down: "John Key's case thrown under the table."

The National Society of Brushmakers, whose office is at No. 15 Hackney Road, London, is the result of the union of two societies—the United and the Amalgamated. The latter was sometimes referred to as the "Second." But with this familiar name it should not be confused with the "second" society that existed prior to 1825.

The word "National" was adopted as lately as 1917. Since then one of the chief things done was to admit women as members, which occurred for the first time in May, 1918. All that now remains to complete the brotherhood is for the painting-brush makers and the bone-brush makers to throw in their lot and join the National. In the case of the first it might be said that it would be a gentlemanly act on the part of the "gentlemen P. B. M's.!"

CHAPTER XVII

THE BRUSHMAKERS OF OLD BRISTOL

THE sense of the importance of brushmaking was instilled in the author as a child. He got it first from his father. The notion was further illuminated by an old man with whom the boy worked. Next to the father, the old man was perhaps the most wonderful craftsman in the world ! So the boy thought.

The three together represented the ancient institution of master, apprentice, and journeyman. The journeyman could turn his hand and do anything. As panhand he was great, and not less good at hairs. He worked with equal ease at drawing, which he called a beautiful art. Drawing in those days included boring and finishing and all. Furthermore, he could make excellent army shaving brushes and also a passable sash-tool.

The army shaving brushes were not for the army. The journeyman said this ; and when he spoke his voice assumed the tone of authority, as one who had an interest in the boy's education. No, they were made simply as good poor man's brushes to be had cheap.

The work was simple. The stock, which was perfectly square, was covered with leather. The leather extended an inch or more up the bristles, where it was bound with string.

The cubes of wood, which may have been an inch in size, were first placed in a row near the stove. Upon each of these would be set the knot of bristles, which had been dipped in cement and tied with thrum. So far they would be kept warm. The leather was cut in strips same width as the wood. Two pieces were used. The bottom of the wood was placed in the centre of each in turn. The four ends would be turned up, pressed upon the moist knot with the fingers, and bound. As the leather upon the wood remained to be seen there was scope for colour, one piece might be green and the other red.

In course of time, as these army shaving brushes were discarded by the army, their name was changed to "leather heads."

The old man came originally from Bristol ; it was his dear old town : so the boy gathered a good deal about it. Indeed, to his young mind Bristol and brushmaking were inseparable, and the old man stood for both.

That the man had tramped all the way and come at last to the little workshop in Nottingham, was to the boy, a great adventure.

The real tramp in those days was a respectable person. Within the meaning of tramp was included the brushmaker walking from town to town in search of work. Tramp was another name for journeyman.

When the man arrived he showed his "blank" and thereby proved he was a "legal" workman. The blank was a little book with blue paper covers issued by the United Society of Journeymen Brushmakers. On the front page appeared the brushmakers arms embellished with various things connected with the craft, as the square and compass, the foot lathe the steel comb, and a pair of shears. These matter-of fact oddments occupy the lower part of the shield whilst the other touches the sense of romance with three bundles of bristles and three wild boars. Othe things support the shield. The spirit of adventure i further enlarged. On the left side is a Russian with spear, on the other a bristly boar. The animal stand upon his hind legs. High above the shield the Russian eagle is perched upon a barrel of bristles. The two-headed bird looks down upon the man and the pig with equal scorn.

Needless to say all this fed the boy's imagination; and he found further food in the printed and written matter that followed. Briefly, this touched upon the journeyman's character; it said: "*This is to certify that John Murphy has behaved consistent with the rules of the trade, and as such is recommended by the Bristol Society, this 23rd day of July, 1869.*" Here appeared the signatures of steward and secretary; and below was written: "*The bearer can take a place of work at Pan, Hairs, and Drawing.*" Then followed the remote date the man first entered the society.

The little book contained twenty forms. The number filled up showed the various towns to which the man had tramped and obtained work. In each case was recorded his tramping money, which was paid him at the rate of 1½*d. per mile* (*which includes the whole expense*) *to go to a place of work.* Another method of payment was 1d. a mile and a bed at the club house.

The club houses were inns; the one in Nottingham, at the time, was called "Filo-da-puta."

As the tramp received his money at each town the amount was entered, dated, and signed by the local steward. Hence most towns had a society of brushmakers, and each place a club house. Here the "Hope and Anchor," there the "Craven's Head."

The landlord, as a man of importance, was the society's banker. He who, in accordance with the rules, supplied each committee man with a pot of beer, figured also in the finances.

In 1829 the landlord of "The Hope," Blackmore Street, Drury Lane, London, addressed a note to the committee; a sort of ultimatum, in which he expressed himself as the injured person. The letter, as will be seen, is adorned with capitals. Officially it was addressed to the secretary.

"*Sir, In Consequence of your repeating Disappointing me and Paying others in Preference You are aware of My Sentiments last Night therefore it is left with you to Divise means to Pay the Men out of Employ. I Remain yours resply.*—T. HAWKINS."

The committee assembled a few nights later in full force. The minute book records a resolution passed upon Hawkins: "*That he be had up in the room to Give an explanation of his Conduct . . . . After a very noisy and Clamorous Discussion (after Mr. Hawkins had Promised to advance another* 100 *Pound to the Society if Necessary) it was Resolved that the Votes be received on Monday Night For and Against Removing the Club House.*"

In other respects, also, this minute book teems with interest, but we will limit our view to the personality of the landlord. His name occurs again in the last week in 1830.

"*Motion made by R. Bonsey for Mr. Hawkins to be had up to explain why the Usual Cheer at Christmas was not Provided but Mr. Hawkins, not being in, the Business of the Evening Proceeded . . . .*

"*At the Conclusion of the Business Mr. Hawkins brought up Gin, Rum, and Brandy which seemed to Satisfy all Present. Adjourned.*"

In this London Minute book there are occasional references to Bristol. Brief as these are they show that the brushmakers there were mostly "legal" craftsmen.

An old Bristol directory, dated 1793-4, contains the names of eleven masters. One of these, a Mr. Jones, had a business in Mary-le-port Street. The name remains upon the sign in the dear old street to this day. It is a brushshop still!

The number of workmen the eleven masters employed cannot now be known. One thing, however, is almost certain. Each would have one or two apprentices. In every case the bond would be made on parchment.

The content of an indenture made the latter part of the eighteenth century is worth recording for its quaintness. The first two words are embellished in a style that would befit a royal charter. The matter reads—

> THIS INDENTURE, made the second Day of December in the Year of Our Lord, One thousand seven hundred and Ninety Nine Between John Wallis of The first Part and Daniel Hodgkins of the Second Part WITNESSETH, That the said John Wallis Doth by these Presents, Put, Place and Bind himself from the Day of the Date hereof, during the Term of seven Years thence next ensuing, and fully to be completed and ended. AND the said John Wallis Doth covenant, promise and agree, to and with the said Daniel Hodgkins that he the said Apprentice shall and will faithfully serve his said Master his secrets keep, his lawful Commands gladly obey and do; hurt to his said Master he shall not do, nor suffer to be done by others, when it is in his Power to prevent the same: His Master's Goods he shall not waste or embezzle, the same give or lend without Leave; Day or Night absent himself from his said Master's Service; nor do any other Act, Matter or thing whatsoever, to the Prejudice of his said Master—but in all Things shall demean and behave himself towards his Master and all his as a faithful Apprentice ought to do. AND the said Daniel Hodgkins IN CONSIDERATION HEREOF, doth hereby for himself, his Executors, Administrators and Assigns, covenant and agree to Teach, Inform and Instruct, or cause and procure to be Taught, Informed and Instructed, the said Apprentice, by the best Ways and Means he can in the ART OR TRADE OF A BRUSHMAKER. Agreed also That the said John Wallis Shall not Earn

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more than Seven Shillings per Week for the First three years and Eight Shillings and Six Pence For the Residue of the said Term of Four Years For his said Master—but Shall Receive All he Earns Above at the Prices Given to Journeymen Brushmakers at this Date. In Witness whereof the said Parties to these Presents their Hands and Seals interchangeably, have put the Day and Year first above written.

John Wallis.
Daniel Hodgkins.

Sealed and Delivered in
the Presence of Us,

Henry Webster.
Nicholas Butler.

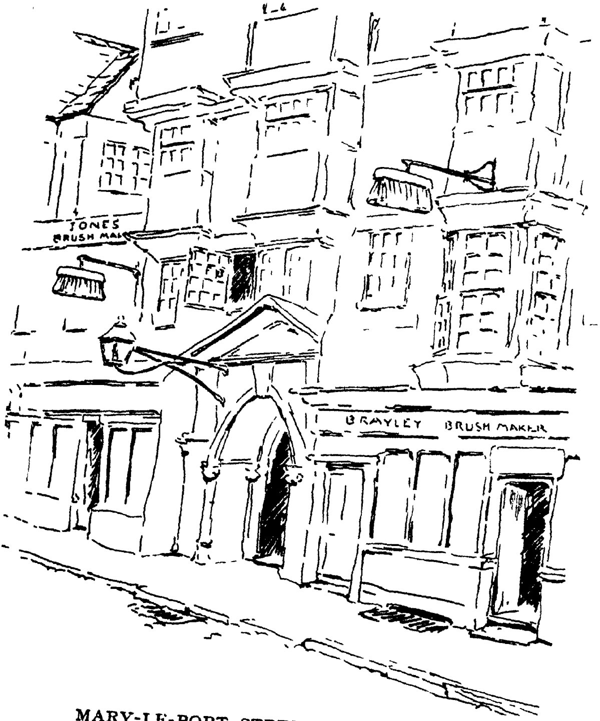
The Bristol directory for 1793-4 shows that brooms were among the most important goods for sale in the market in Leather-hall Back. In turning to the addresses of the brushmakers it is interesting to note that they lived near this market in *The Back.* With their workshops in and about Nicholas and Mary-le-port Streets they were conveniently near the spot in which they sold their brushes.

The historians say that: "*The inhabitants of Bristol were very early addicted to Trade and Manufacture .... By the Charter of Edward the third it appears that it was so considerable, as to obtain the reputation of being the second City in England for Trade and populousness.*"

Later, the enthusiastic compiler of Bristol's first directory describes the port as: "*The capital Key and great Mart of this country.*"

In the eighteenth century, Bristol Back, with its innumerable sheds and lively coasters, was perhaps the busiest spot in the city.

The master brushmakers, on market days, were installed in the sheds next the tanners and dealers in calf skins. The leather merchants, who were looked upon as the richest men in the port, must have given



MARY-LE-PORT STREET, BRISTOL, 1877

an air of importance to these sheds. On the other hand, the brushmakers, though comparatively poor men, were, perhaps, interesting as a diversion from the monotony of leather. Their brushes were of use to the shipowners as well as the traders. The deck-scrub, the long-handled paint brush, and the tar brush were familiar things to the seafaring folk. Equally so the folks at home had their "straight dairy" and their "pickit" shoe-brushes, and also their Russian-bristle brooms. The dairy brush in those days was made of a good mixture of bristles and whalebone, and the shoe-brush pure bristles. Mexican fibre, Kitool, and the various kinds of bass were not yet known.

The importance of the craft at that period is reflected in 1882, in a minute book of the Bristol Society of Journeyman Brushmakers. Under date 15th March it was proposed—

> That as our National Federated Trades Union was founded in this City by the formation of the Bristol Society in 1782, and this being the hundredth Anniversary, this Meeting is of opinion that such an event should not be allowed to pass without some special effort being made to celebrate in a manner befitting the occasion.

In the centenary celebrations a good number of brushmakers, proud of their craft, walked in procession behind their trade banner. The banner which, by the way, was lent to them by their Manchester brethren, had not been seen in public for many a year. Old men in the procession were heard to say they had never seen it before. The banner was dated 1747; an earlier date than that claimed by Bristol. The date, however, was adopted in London by the United Society.

If a picture could be made of the little pageant the painter would do well to introduce old Mary-le-port Street as the setting.

The ancient church of Mary-le-Port has all been hidden from the street of that name for three hundred years, save only the little porch which peeps from under the overhanging houses. The houses, which are among the oldest in Bristol, have been occupied by brushmakers of many generations. At one time the sign of the brushmaker, a big brush, hung high above the porch; at another period a brushmaker lived on either side and each showed the sign of the brush. One of the men, a maker of hog's-hair paint brushes, fixed an ingenious aphorism over his door: "NATURE'S RUDEST BRUTE OUR FINEST ART SUPPLIES."

CHAPTER XVIII

TRAMPING

In days gone by the tramp and the vagrant were different persons. The tramp was not a beggar but a workman out of a job ; not a loafer but a skilled craftsman on his way between one town and another, seeking work at his own trade.

The brushmaker who went on foot to a distant town at the bidding of his society was a good type of tramp a century ago.

The cash accounts of the societies of journeymen brushmakers in those days contained some interesting items. The quaint statement before us is that of the brushmakers of Witham, in the county of Essex, for the half-year ended December, 1828.

	£	*s.*	*d.*
50 Tramps	12	18	–
12 Ditto, Resting on Sundays	1	10	–
1 Ditto, 4 days' Sickness		6	8
1 Blank Drawn		1	–
Monthly beer	2	3	9
Postage and Stationery		5	10½
Secretary's Salary		10	6
Balance in hand	4	16	10
	£22	12	7½

So far the case of Witham is typical, the expenses of other branch societies were likewise almost all "tramping money."

In another way, however, Witham came in to prominence. In 1829 the brushmakers there, with all the philosophic tendencies inherent with the craft, addressed a long letter to the London brethren. The letter was upon the all important matter of tramping. Here are a few extracts—

> We live in times when the struggles of intrigue, ambition, and tyranny are continually giving rise to some political events, which if not of themselves sufficiently important, they are made so by knaves and speculators for the sake of gain . . . It is true that brushmakers may not so severely feel the consequences that arise from such occurrences as many other trades, though we ourselves have but lately had a narrow escape, but it is true that almost every trade, whether of a foreign or local relation, must suffer seriously from such untoward events : and in our case, our suffering from such events, will be either increased or decreased according to the conduct we pursue. If we could indulge any hope that the trade and manufactures of this country were likely to return to their olden state, and that our old friend Doctor Paine with all the circumstances of trade that attended his early days would return it would be a relief both to our anxiety and trouble. But we might as well expect a retrograde of time, or that an old man will again become young, as to expect ever to see such a good state of things again . . .

This letter, we must remember, was written by panhands. The occasion may be pictured now by any member of the craft. A good penman would be chosen, and all would collaborate in what was written. The elegant prose was a collective effort ; its rhythm and style arose from the united genius around the pitch-pan. These panhands read the newspapers, a single copy of which cost 6d. in those days. So one copy only would be bought and the same used by the whole of the shop. Their " old friend Doctor Paine " was Thomas Paine, author of *The Rights of Man.* Though the letter runs on to 1,200 words its interest does not in the least flag. It deals with the whole system of tramping with a view to recommending economy, and suggests that the trade might benefit by suspending it for two months from the 10th December to the 10th February; whereby a saving of £100 would be made.

No less a sum than £820 (in addition to what had been paid off club house debts) had been expended during the previous six months. There had been an average of fifty-six tramps "round the trade" in that space of time. Each tramp, in going once round, cost £10 3s. 7d. Therefore the tramping account alone, not including Sunday allowances, had probably cost £570. The balance of £250, it is stated, was spent on funerals, superannuations, club beer, postage, secretaries, salaries, and defensive strikes. Touching upon the other side of their accounts it was stated that the weekly contributions from 800 to 850 members had only been sufficient to cover the tramping expenses. It was this dismal financial outlook that inspired those panhands at Witham to write their letter to London. As craftsmen they addressed their brother tramps as gentlemen!

> Gentlemen.—The complexed state of society in this country, and the uncertainty of commerce, either foreign or domestic, render it necessary that even every artisan and mechanic should well consider how he is, or may be situated with reference to such a state of things. Of late we have often seen that, in some departments of trade, one "short" month has substituted adversity for prosperity, and brought ruin and privation on those who before had never dreamt of such calamities. We also see that almost every class of journeymen mechanics in this country, through such misfortune, combined with a want of care, forethought, and perseverance on their part, have fallen before such consequences, and so far fallen and been so disjointed as to render it impossible ever again to recover their station and interest among society.

Now the London brushmakers, having read and read again the long epistle from Witham, replied as men of

THE TRAMPING ROUTE.

Giving an exact Account of the Relief, &c. at each place.—No Tramp can become a Receiver unless he has been all round within four months.

To receive at		miles	money		beer		bed	total	
London, to go to	Witham	40	4	4	0	10	5	5	7
Witham ..	Ipswich.	32	3	8	1	0	6	5	2
Ipswich	Bury ...	26	2	8	1	0	6	4	2
Bury	Diss	22	2	4	1	0	6	3	10
Diss	Norwich .	22	2	4	1	0	6	3	10
Norwich	Lynn	43	4	7	1	0	6	6	1
Lynn	Kettering .	67	7	1	1	0	6	8	7
Kettering	Leicester ..	26	2	8	1	0	6	4	2
Leicester ...	Derby . .	29	3	0	1	0	6	4	6
Derby	Stavely ..	28	2	10	1	0	6	4	4
Stavely	Sheffield ..	11	1	6	1	0	6	3	0
Sheffield	Newark ..	42	4	6	1	0	6	6	0
Newark ...	Lincoln	16	1	10	1	0	6	3	4
Lincoln	Gainsbro' ..	18	2	0	1	0	6	3	6
Gainsbro'	Hull	3J	4	1	1	0	6	5	7
Hull	York ...	39	4	3	1	0	6	5	9
York	Leeds	24	2	6	1	0	6	4	0
Leeds	Bradford	10	1	4	1	0	6	2	10
Bradford	Rochdale ..	21	2	3	1	0	6	3	9
Rochdale	Manchester	11	1	6	1	0	6	3	0
Manchester	Bolton .. .	12	1	6	1	0	6	3	0
Bolton ...	Blackbonrn	12	1	6	1	0	0	3	0
Blackburn	Preston .	10	1	4	1	0	6	2	10
Preston	Lancaster ..	22	2	4	1	0	6	3	10
Lancaster	Preston	22	4	4	1	0	6	3	10
Preston	Liverpool ..	32	3	8	1	0	6	5	4
Liverpool	Chester....	18	2	0	1	0	6	3	6
Chester	Shrewsbury	40	4	4	1	0	6	5	10
Shrewsbury	Wolverhamp.	30	3	6	1	0	6	5	0
Wolverhampton	Litchfield..	15	1	9	1	0	6	3	3
Litchfield	Coventry ..	27	2	9	1	0	6	4	3
Coventry	Birmingham	18	2	0	1	0	6	3	6
Birmingham ...	Bewdley .	21	2	3	1	0	6	3	9
Bewdley	Worcester	14	1	8	1	0	6	3	2
Worcester	Tewkesbury	15	1	9	1	0	6	3	3
Tewkesbury	Gloucester .	11	1	6	1	0	6	3	0
Gloucester	Bristol . . .	34	3	10	1	0	6	5	4
Bristol	Exeter . . .	82	8	4	1	0	6	9	10
Exeter	Poole . . .	79	8	1	1	0	6	9	7
Poole	Salisbury .	30	3	6	1	0	6	5	0
Salisbury	Southampton	22	2	4	1	0	6	3	10
Southampton ..	Reading . .	46	4	10	1	0	6	6	4
Reading	London . . .	40	4	4	1	0	6	5	10
London			5	0	0	10	1 0	6	10

CHART ISSUED BY THE LONDON SOCIETY OF JOURNEYMEN BRUSHMAKERS, 1829 equal erudition. They did not agree with Witham's desire to have the tramping money cut down. In the first few lines they make this clear.

> This proposition for stopping the tramping we are utterly averse to as an experiment : the trial of which would have a direct tendency to dissolve and render nugatory almost the whole of the labour and expense employed to bring our present system, of Tramping and Receiving, to that enviable state of perfection to which it has arrived. The experience we gained in 1826 has taught us to value the present system as one pre-eminently calculated to meet the exigencies of the trade at large. Upon a general scale it is at once a preservative against the torpor and supineness produced by the receiving system, and also an effectual guard and check against the overwhelming expense of continual tramping. The present plan has operated so well, during the short time it has been in operation, that it would argue the prevalence of monstrous folly among us, as a body, to accede to any proposition any way calculated to impair and overthrow it. It is our decided opinion that no circumstances can ever justify a stoppage of tramping, except a recurrence of the appalling deathlike state of trade experienced in 1819 . . . In fact it would be a violent remedy similar to the amputation of a valuable limb, which ought never to take place until all other remedies are found to be inefficient to preserve the patient's life. As respecting the saving to be accomplished our friends have entirely miscalculated it.

In order to set forth their system of tramping it was necessary for the society to publish a guide showing the tramping route. A copy, dated 1829, bears these lines at the head—

> THE TRAMPING ROUTE
>
> Giving an exact Account of the Relief, etc., at each place. No Tramp can become a Receiver unless he has been all round within four months.

Under this is a list of about forty stages with the details arranged in columns. The first column contains the names of all the towns that represent the various stages and also the number of miles between, in the next is arranged the tramping money, and in the others the beer money, bed money, and the total.

With this list it was customary to give a note of warning. Here is an example—

> We have received information of the expeditious method of some of our Tramps in conveying themselves round the trade, or rather passing through it. Some being paid to Exeter from Bristol, and then conveying themselves by Coach to London ; others cutting short the Tramping Route two hundred miles at a time. It is our duty to apprise these birds of passage that, when they thus take upon themselves to deviate from the rules of the trade, they deprive themselves entirely, for four months, of coming upon the receiving list : unless they return to the place they took flight from, at their own expense, and go through those Societies they previously evaded.

Fortunately, these " birds of passage " were not numerous. Now and then a man may have " gone wrong " but the society remained an upright body. The certificate that each man carried in his pocket had upon it, printed in bold capitals—

"THE TRADE EXPECTS EVERY MAN TO DO HIS DUTY."

CHAPTER XIX

THE OUTSIDERS

IN London, as in other cities, the authorities sometimes change the name of a street. Many years ago they changed Kent Street into Tabard Street. But memories of Kent Street linger in the minds of old men, and they call it by the old name still. It was a street of brushmakers. All in a small way.

Here the proverb, *As poor as a brushmaker*, seemed true to the last degree. The street was composed of big dingy houses with different persons living on every floor. Many a room was a workshop and kitchen as well. We could say the tenant lived from hand to mouth. Each in business on his own account he was not a journeyman, neither could he be called a master, as he employed nobody but his family. He did not belong to the trade union himself nor employed any member of it. It was a street of outsiders.

Other brushmakers called them " garret men." The London Society of Journeymen Brushmakers looked upon them as mostly " illegal " ; and discussed the whole matter as " Kent Street."

The dealers, for whom the Kent Street brushmakers worked, called them the " Friday nighters." 'Twas Friday they took their goods in and drew what money the dealer offered. 'Twas Friday they returned home and " drove the wolf from the door."

There are exceptions always in all men. So here and there in Kent Street was a man who had a little capital and a small stock of materials. He sold stuff to others.

Perhaps he lived at a corner shop whose window-panes were bronzed with pitch steam.

. In hard times the shop was indispensable, as it supplied modest quantities down to the smallest possible.

BRUSH MATERIALS DEALER'S SHOP,
KENT STREET, LONDON, 1877

Willingly the owner would get up from his work and serve a customer with two pennyworth of fibre and a hap'orth of wire.

To pass down Kent Street was to see brushmakers at work near the windows. On the ground floor a man might be making bass brooms, on the next another finishing " dairy," and in the cellar a woman drawing " dandy." Three different tenants. Three business concerns !

The " dandy " would perhaps be " ricketted." That is there was a channel formed between the holes at the back in which to bed the string and save the use of a cover.

The difficulties in which the brushmakers of Kent Street worked can be felt only by those in the trade. Most of them learnt brushmaking as a family duty. The father would teach his child ; the child, in due course, would inflict the same upon his children. Unfortunately the child could be taught but one branch, and that again would be limited to two or three patterns. Of necessity the Kent Street brushmakers were specialists. Their small means dictated their limitations. In other walks of life specialism means high fees ; in the West End it points to fortune. In Kent Street specialism spelt poverty.

The specialist the world over, one would say, employs the best tools. Kent Street, however, furnished exceptions. Irony lurked there in every corner.

In 1850, when brushmakers throughout the country had long adopted the foot lathe, there were men in Kent Street who bored their stocks with bit and brace.

In the light of skilled craftsmanship Kent Street was not without genius. It could be said that, in the circumstances, some remarkable things were done. We must remember that each person was a specialist. All a man's energy and skill was centred in brushes of one sort. This meant the work grew so familiar as to be like child's play to his hands. Oh ! but in his heart there was the eternal strain of living !

Each week-end the man sold his goods to the same dealer ; always on Friday night and at the same hour.

It was the dealer's time. It was the hour of reckoning in which the dealer would decide. 'Twas the inevitable occasion when the poor brushmaker placed his goods upon the merchant's counter and himself at the merchant's feet. He was a " garret man," a " Friday nighter," an outsider.

APPENDIX

FIRE HAZARDS INCIDENTAL TO THE BRUSHMAKING INDUSTRY

By C. S. Johnson, F.C.I.I.

The history and craft of the brushmaker have been ably described in the foregoing pages of this book, and this added chapter will endeavour to point out the possibilities of fire arising in a brush factory, and how such risks may best be minimized.

It will be admitted that a brush factory is a place where a fire, once started, is likely to assume serious dimensions in a very short space of time, as the materials from which brushes of all kinds are made are readily combustible.

The subject appears to divide itself into three parts—

1. The brush, i.e. the bristle hair and fibre, and its treatment.
2. The handle or stock—with which the brush must be incorporated to make it a useful commodity.
3. The amalgamation of the brush and the stock.

The author of this book takes pains to point out that the best brushes are made of bristle. Bristles usually arrive at the factory in knots or bundles ready dressed. As has been explained, the hairhand sorts them into colours and drags them into lengths. Mention has been made earlier in this book of the use of grease in combing. Grease has a twofold use, it assists the comb and livens up the hair. The grease is a mixture of train oil and Russian tallow, and is heated over a stove. Care must be taken that in the heating the pot is not too full, or it might overflow and ignite by contact with the heating medium. The hairhand's bench should be regularly cleared of waste and greasy riflings, which, if left to accumulate, might give rise to the risk of spontaneous combustion.

There appears to be no particular hazard in "sorting" or "dragging." The work is done by hand. Mixing is also a hand process, although it may be done on a bristle-mixing machine, which works on the principle of an endless band on which the bristles are thinly spread and automatically shuffled as the band revolves. Care should be taken to keep the bearings of this machine clean and properly oiled to avoid the frictional risk.

Washing, Bleaching, and Drying. Before being mixed, the bristles are taken in handfuls and well washed in hot soapy water. They are then placed in a number of small heaps in trays on wooden racks in drying rooms. The drying rooms are heated to a temperature of about 120° F., and the drying takes three to four days. In modern factories the drying rooms are heated by steam pipes, and care should be taken to see that the pipes are well clear of the racks and the other woodwork of the room, or the wood may attain a pyrophic condition and burst into flame at a favourable opportunity. The dried timber in the drying room is always ready fuel for fire. No naked lights should be permitted in the drying rooms, which should preferably be detached buildings of brick construction with concrete or stone floors. Drying rooms are often heated by flue pipes. This practice is to be deprecated, but where it does occur care should be taken that the flue pipes are clear of all woodwork and other combustible material, and, if the pipe vents through a wall or roof, the wall or roof should be protected by metal or asbestos packing. Drying is also done in a compartment over or adjoining the boiler house.

This is an extremely hazardous method, and should be avoided if possible. There is always the possibility of sparks from the boiler igniting the fibre or bristle, and also of dust and rubbish falling or being blown on to the boiler and catching fire.

Certain bristles require to be bleached. This is done after washing, and the damp bristles are placed loose in heaps in racks in a lead-lined chamber. Rolled sulphur is placed in a bucket or pan and ignited. The room is then sealed and left overnight to effect the bleaching. Care should be taken that the sulphur fire is so placed that there is no possibility of the flames igniting the woodwork or the bristle. To assist the bleaching process, the bristles are sometimes soaked in a solution of hydrogen peroxide and water before being placed in the sulphur chamber.

Fibres. The fibres in general use are: Bahia Piassava, African Piassava, Monkey Bass, Bassine, Madagascar Fibre, Mexican Fibre, and Kitool. Bahia Piassava is a stiff fibre, and is used for road brooms, scavenging brooms, and road sweepers. African Piassava and Monkey Bass are also stiff fibres used for scrubbing brushes, w.c. brushes, and the like. Bassine is another stiff fibre, and is used for making hard brooms and scrubbers. Madagascar fibre is of medium stiffness, and is used for clothes brushes. Mexican fibre is of a softer nature, and is used for softer scrubbers and w.c. brushes, and for mixing with bristle and/or hair for use in soft brooms. Kitool is another soft fibre for mixing with bristle and/or hair for making warehouse brooms.

These are all vegetable fibres which burn freely on account of the small air cells they contain, and great care is necessary to see that fibres are properly stored and carefully handled. Under compression they are liable to spontaneous combustion, particularly if they are allowed to come into contact with animal or vegetable oils. The various fibres are usually imported by the brushmaker in hanks, partly dressed and dyed or bleached as the case may be. They are cut into the required lengths by guillotines and mixed with other fibres, and also with bristles and/or hair as required. The mixing is similar to that employed with bristles and calls for no particular remark.

Horsehair is largely used to mix with bristle and/or fibre. It arrives in hanks and is cut and treated in a similar manner to fibre. It does not blaze, but sizzles.

In addition to bristles, fibre, and horsehair, the hair of certain animals is used for pencil brushes, shaving brushes, etc. The more expensive sables that make the best artists' brushes are usually brought to the factory in ready dressed " knots," requiring only dragging and sorting. Badger hair is used for the best shaving brushes. The brushmaker imports the skins dressed, but not cut. The skin is slit into strips, and the hair is cut therefrom close to the pelt to give as long hairs as possible. The hair is intermixed with a considerable quantity of wool from which it is combed by hand. There appears to be no commercial value in this wool, which is destroyed, and should, therefore, be bagged up and taken away frequently, so as not to accumulate. On no account should it be left to float about the workrooms.

We have dealt with the preparation of the brush constituents, and now come to the stock or back of the brush. This is, of course, usually of wood, and necessitates the use of woodworking tools. Fortunately, it is the general rule to obtain the " stocks " ready made, requiring only the boring which is part of the brushmaker's trade. As has been explained, the boring of the stock is an art peculiar to the brushmaker. According to the size and activity of the factory so will the amount of woodworking vary. It will be readily appreciated that the large number of holes that have to be bored in the stock make a large amount of wood waste which should be swept up, bagged, and taken away frequently to prevent accumulation.

Parts of certain stocks, which will be inaccessible after the bristles have been incorporated, have to be finished before passing to the pan hand or drawing hand. Sandpapering machines are employed to obtain a smooth surface. In many cases the sandpapering machines are fitted to an exhaust plant to carry outside the building the dust created. This is a favourable feature, and should be encouraged. The sandpapered stocks are then frequently French polished, which process involves the use and storage of methylated spirit, shellac, etc.

The stocks or handles of whitewash brushes, painters' brushes, shaving brushes, etc., are usually brought in ready for use, and call for no particular mention, except as regards storage as wood goods. Certain quantities of ivory, erinoid, and vulcanite stocks or handles are used, and sometimes celluloid. The storage of the latter is an important feature. Arrangements should be made for all celluloid to be kept in metal bins, and no naked light or artificial heat other than steam heat should be permitted in the vicinity of the celluloid store.

We now come to the amalgamation of the brush with the stock. There are two main methods. They are described in this book in the chapters " The Pan Hand " and " The Drawing Hand." The first involves the use of the pitch pan, and is employed in making brooms and coarse work of similar description. The risk is of the pitch boiling over and igniting. This appears improbable during work hours as normally the pan is shared by four workers and is under constant observation. The pan is usually gas heated, and care must be taken to see that the flame is not left alight when the men leave at the end of the day or at meal times. The workers are trained from their apprentice days in the use of the pitch pan, and can generally be relied upon to see that it is properly attended and not too well filled. At each bench there is a warming plate on which the workers stand the " knots " before dipping them, as bristles and fibre absorb the pitch better when warmed. Care must be taken to see that the warming plate does not get too hot, and that the bristles, etc., are not allowed to stand thereon unwatched for too long a time. Attention should also be paid to the appliance used for heating the pitch pan. Not many charcoal heated pans will be found nowadays, but when used they should stand on incombustible bases and be protected by proper fenders and well secured against falling over. The more usual method of heating is by gas. The pipe should be securely fixed in a position where it is not likely to be knocked by the workmen. Flexible tubing, or rubber tubing, should not be allowed. In the more modern factories the pitch pans are heated by steam or electricity. This is a preferable method, as it practically eliminates the fire hazard of the process.

" Drawing " presents no unusual features of fire hazard. The work is usually done by hand. Owing to the valuable nature of the bristle there is very little waste. The bristle is generally weighed out to the workers, and accounted for in a similar manner. Care should be taken, however, to clear up all refuse and to keep the workrooms clean. A hand or treadle machine is sometimes used which automatically picks up the necessary quantity of bristle or fibre to be drawn at a time. This machine should be kept clean to avoid the possibility of spontaneous combustion from material left therein or thereon becoming impregnated with oil, and to avoid the frictional risk.

In " sash tool " making the bristles and/or fibres are tied as described earlier in this book, and then dipped in a cement composed of a mixture of linseed oil and resin. They are then forced on to the handle and tied or wired off. Whitewash brushes and large painters' brushes which have no ferrules have the root end of the bristle or fibre finished off by singeing. The cemented end of the fibre is rubbed along a red hot plate, which process gives it a smooth and finished appearance. The hazardous nature of this process can readily be appreciated. Expert workmanship is required to know how far to go with the singeing. A flame invariably appears which the operator has to blow out while it is well under control. The woodwork of the handle also usually becomes scorched in the process. Singeing should if possible be done in a separate fireproof compartment, but at any rate well away from any other process.

In cases where metal ferrules are used the cement is poured into the ferrule and the knot stuck in. The ferrule is then stamped, while the cement is warm, to give a finished appearance and a better grip. Attention must be paid to the cement liquid. It is highly inflammable, and has to be kept in a liquid state usually over a gas-heated bunsen burner. The pan should not be too well filled, and should be protected from the bench and other woodwork.

Shaving brushes are also fixed in a similar manner. The cup of the handle is filled with cement, and the hair or bristle is set into the cement. The hazard of this process with celluloid handles can well be appreciated. It is usual in all these processes to warm the root ends of the bristle, fibre or hair on a hot plate before dipping into the cement, as they take the cement better if treated in this way. Attention to the use of the hot plate is as essential in these processes as with pitch-pan work.

The majority of "drawn" work requires backing, and this is done by glueing backs on to the brushes after they have been drawn. The heating of glue is a common hazard, but, nevertheless, requires attention. Glue should be heated wherever possible in steam-jacketed pots, and, when glue pots are placed on benches, stone slabs or other protection should be provided. If gas-heated pans are used care should be taken that shavings, chips or other refuse do not collect on the bottom of the pot to fire when the pot is again set on the stove.

The backs are finished to shape by bandsaws, spokeshaves, and sandpapering machines, and here again arise the risks incidental to the creation and disposal of wood waste.

French polishing is necessary in a large amount of work. The polish is made from a mixture of methylated spirit and shellac. Care is required to keep the quantities of these commodities in use as low as possible, and to store the stock in a suitable place.

Toothbrush-making forms quite a separate section of the trade, and involves a number of particular fire hazards. The handle is made from the leg bone of the ox. The bone is cropped into lengths, then split into five pieces, and by various non-hazardous processes is fashioned into shape and bleached in hydrogen peroxide. The handle, as it may then be termed, is graved or slotted down the back and drilled to take the bristles which are next "drawn" into the handle. The graved slot at the back of the handle is then filled with wax or cement which, when hard, is scraped, sandpapered, and wet polished. The whole brush is washed in hot soapy water and placed with a number of others in racks in a mildly-heated drying chamber. When dry, the handles are dry polished or glossed on a polishing disc. The bristles are then trimmed by hand guillotine to the shape or fancy of the dealer, and the brush is complete, requiring only the stamp and trade-mark of the dealer or manufacturer before being packed ready for delivery.

The wax used is bottle wax, a similar preparation to sealing wax, and is usually heated in a small pan over a gas flame. Considerable care is necessary to see that the pan is not too full or left unattended as, if it were to overflow, it would probably become ignited by the gas flame. The cement is a cold mixture of a white powder (a residue from the manufacture of hydrogen peroxide), white varnish, and shellac. Care must be taken to limit the amount of these latter ingredients in use, and proper provision made for the storage of the stock.

There is no particular feature in grinding and drilling. The waste is not inflammable, and is cleared up regularly and sold for the manufacture of bone manure.

Candle black, or more frequently gas black, is used when stamping size or quality marks on toothbrushes, but a more important feature is the fixing of the trade-mark. This is done by transfer or by rubber stamp with ordinary printer's ink, but to make it lasting it is wiped over with a coat of collodion varnish. Only small quantities of this are necessary in the workshop at a time, as one girl can probably cope with the output of the factory. The stock should be kept away from the workshop under cover in the open or in a separate fireproof compartment.

Methylated spirit is in general use throughout the toothbrush factory. Nearly every hand has a small tin by her side to immediately remove any marks or stains on the handles. A non-spilling container is generally used, but no naked flame should be permitted where methylated spirit is used.

In conclusion, brush factories may be looked upon as risks wherein fire hazards abound. Good management is, therefore, the principal factor in minimizing the possibilities of fire arising. The utmost cleanliness is essential. Waste must not be allowed to accumulate. The premises should be cleared up daily. All oily and greasy waste should be specially removed. Automatic exhaust plants should be fitted for use with woodworking and sandpapering machines. Lighting should be by incandescent electric light wherever possible, and heating should preferably be by hot water pipes or radiators. Preferably there should be no form of heat in the bristle or fibre store, nor in the store for finished goods. Fire appliances should be encouraged. Fire alarms and automatic sprinklers can be suitably installed in modern premises, and endeavours should be made to separate the stores from the workshops and drying rooms. Stocks of finished goods should be stored in separate warehouses. If woodwork other than boring is done it should be in a separate building. Drying rooms should be of fire-resisting construction and apart from the process departments.

From the foregoing it will be appreciated that immunity from serious fire damage in a brush factory can only be attained where the premises are properly arranged, scrupulously clean, and, above all, well managed and adequately protected with the necessary appliances for extinguishing fire.

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